

A photograph of a surgical team in an operating room. The scene is dimly lit, with the primary light source being the overhead surgical lamps. Several surgeons in blue scrubs and masks are visible, focused on a patient lying on the operating table. The room is filled with medical equipment, including monitors and IV stands. The overall atmosphere is professional and busy.

# CLIMATE CHANGE CRISIS

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and the Primary Care System

This  
is me



**Note all the  
single-use PPE**



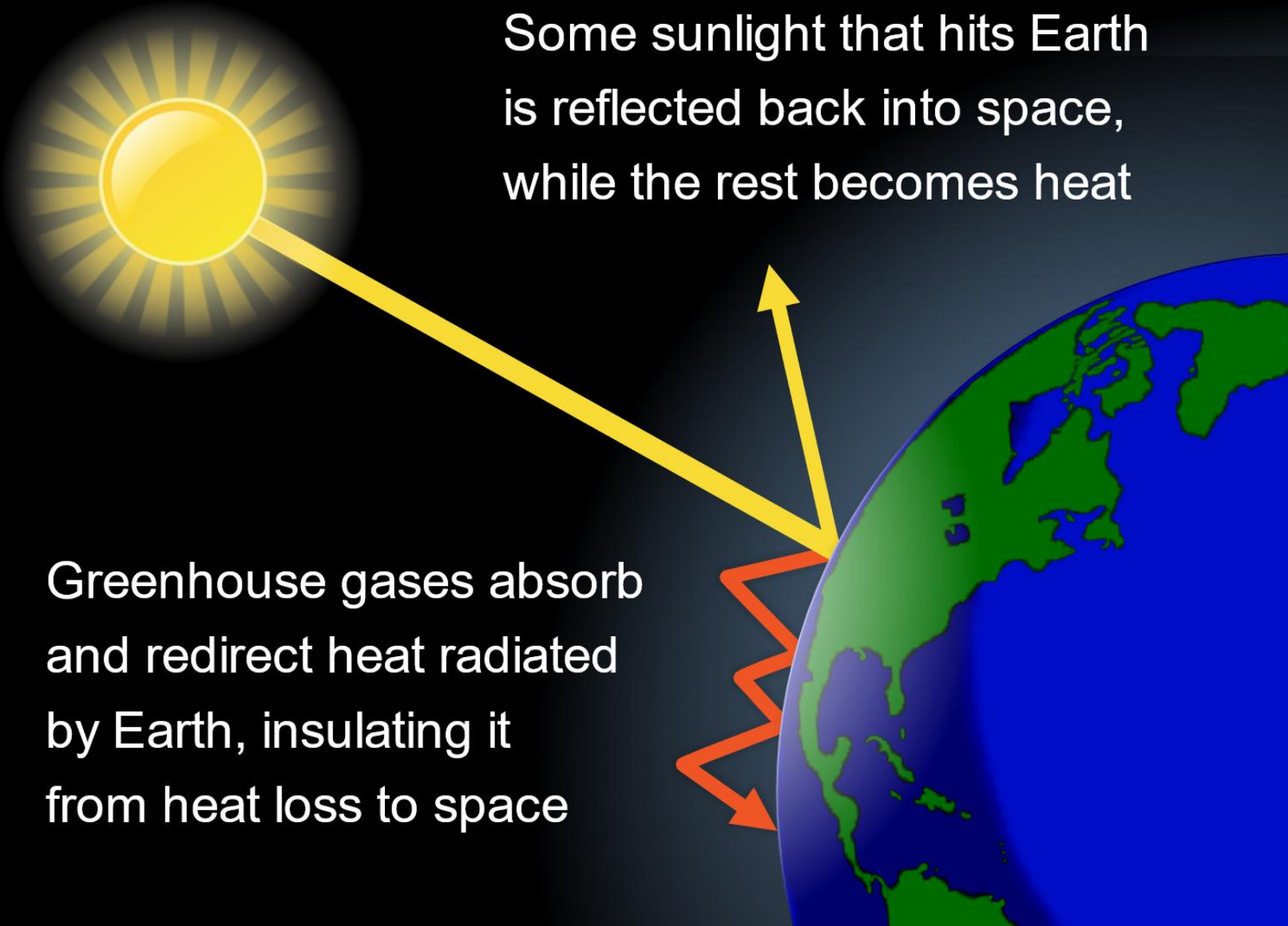
A small green seedling with two leaves is growing out of a crack in parched, cracked earth. The background shows more cracked earth, suggesting a drought or severe dryness. The lighting is warm, possibly from a low sun, casting soft shadows on the cracked surface.

—  
“Climate change is  
the biggest global  
health threat of the  
21st century”

# The Greenhouse Effect

Some sunlight that hits Earth is reflected back into space, while the rest becomes heat

Greenhouse gases absorb and redirect heat radiated by Earth, insulating it from heat loss to space



Eunice Newton Foote  
1856





**The total greenhouse gas emissions caused by an individual, organisation, product or activity**













PROYECTO  
NEPTUNO

CONTRA LA  
PRIVATIZACIÓN  
DEL AGUA





# India, US and Japan hit by landslides, heat warnings and deadly flash floods in week of wild world weather

Extreme weather in the United States, China, India and Japan comes as the world recorded its hottest day on record last Thursday, as global average temperatures continue to climb.



**Olive Enokido-Lineham**  
News reporter @OliveLineham

## Extreme heat killed more than 60,000 people in Europe in 2022, research finds

Thousands of people in the UK were found to be among those who died in the extreme conditions, while scientists said the most intense period across Europe was between mid-July and mid-August when nearly 40,000 people died.



**Hannah Thomas-Peter**  
Climate change and energy correspondent @hannahtpsky

Monday 10 July 2023 17:15, UK

## 'Italy no longer has four seasons': Intense heatwave grips the country

Capital city Rome hit a high of 35C (95F) on Saturday and could see temperatures as high as 42C (107.6F) on Tuesday - when other Italian cities could be even hotter.



**Hannah Thomas-Peter**  
Climate change and energy correspondent @hannahtpsky

Saturday 15 July 2023 23:29, UK

## Drought parches nearly half of EU land stoking food production fears

Recent rainfall in Spain and Portugal was not enough to undo the damage to food production from drought earlier in the growing season, while fears are growing for crops in northern Europe, where a new drought is developing.










**Victoria Seabrook**  
Climate reporter @SeabrookClimate

Saturday 15 July 2023 22:01, UK

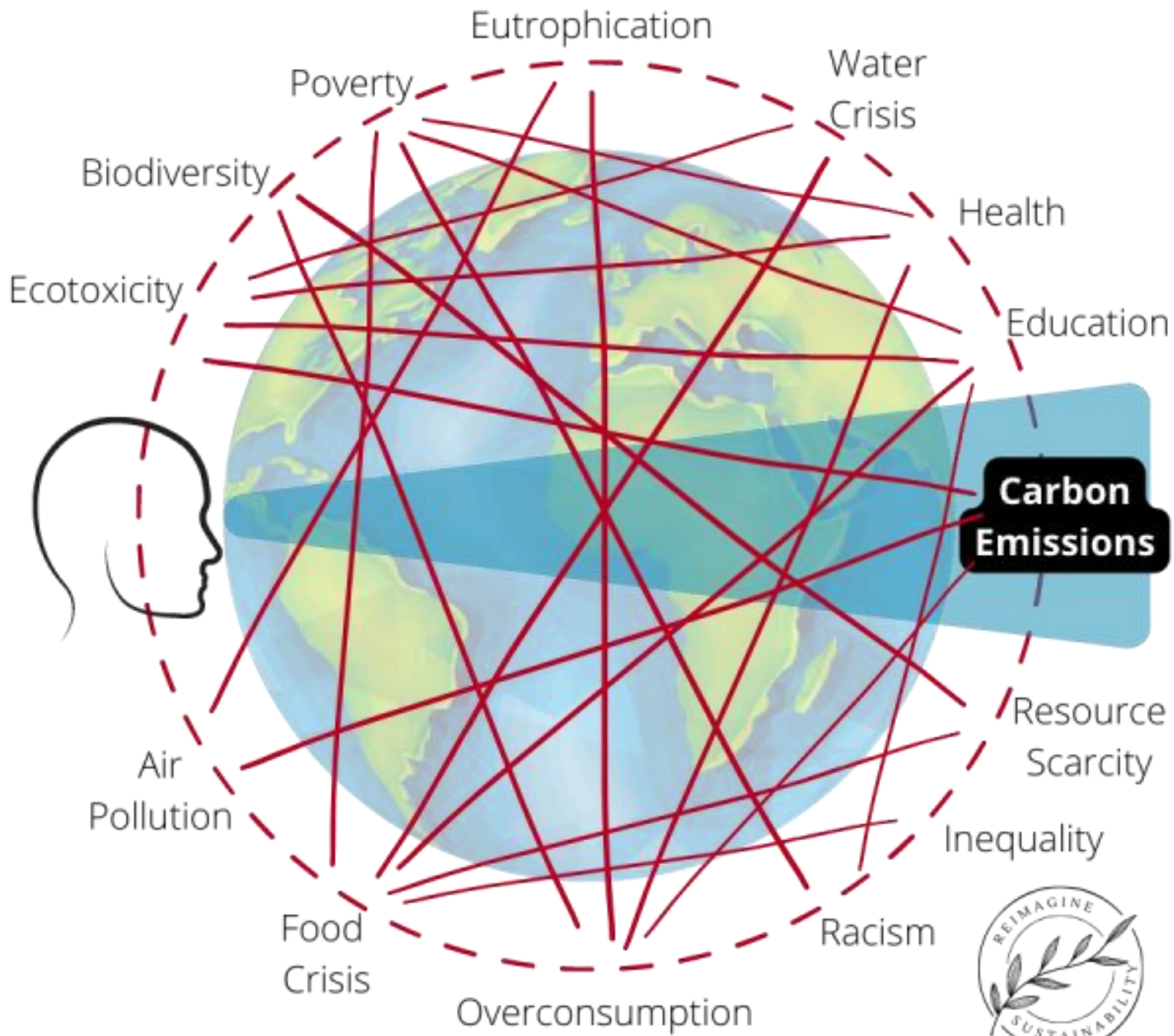
A photograph taken from the deck of a ship, looking out over a vast expanse of icebergs in the ocean. The icebergs are of various sizes and shades of white and light blue. In the foreground, the ship's deck is visible, with a person wearing a high-visibility yellow vest and a dark jacket looking out at the ice. The ship's mast and rigging are visible on the left side of the frame. The sky is overcast and grey.

**CLIMATE  
CHANGE IS  
(SERIOUSLY)  
REAL**



 <p><b>Extreme Heat</b></p>	<p>More frequent, severe, prolonged heat events</p>	<p>Elevated temperatures</p>	<p>Heat-related death and illness</p>
 <p><b>Outdoor Air Quality</b></p>	<p>Increasing temperatures and changing precipitation patterns</p>	<p>Worsened air quality (ozone, particulate matter, and higher pollen counts)</p>	<p>Premature death, acute and chronic cardiovascular and respiratory illnesses</p>
 <p><b>Flooding</b></p>	<p>Rising sea level and more frequent or intense extreme precipitation, hurricanes, and storm surge events</p>	<p>Contaminated water, debris, and disruptions to essential infrastructure</p>	<p>Drowning, injuries, mental health consequences, gastrointestinal and other illness</p>
 <p><b>Vector-Borne Infection (Lyme Disease)</b></p>	<p>Changes in temperature extremes and seasonal weather patterns</p>	<p>Earlier and geographically expanded tick activity</p>	<p>Lyme disease</p>
 <p><b>Water-Related Infection (<i>Vibrio vulnificus</i>)</b></p>	<p>Rising sea surface temperature, changes in precipitation and runoff affecting coastal salinity</p>	<p>Recreational water or shellfish contaminated with <i>Vibrio vulnificus</i></p>	<p><i>Vibrio vulnificus</i> induced diarrhea &amp; intestinal illness, wound and blood-stream infections, death</p>
 <p><b>Food-Related Infection (<i>Salmonella</i>)</b></p>	<p>Increases in temperature, humidity, and season length</p>	<p>Increased growth of pathogens, seasonal shifts in incidence of <i>Salmonella</i> exposure</p>	<p><i>Salmonella</i> infection, gastrointestinal outbreaks</p>
 <p><b>Mental Health and Well-Being</b></p>	<p>Climate change impacts, especially extreme weather</p>	<p>Level of exposure to traumatic events, like disasters</p>	<p>Distress, grief, behavioral health disorders, social impacts, resilience</p>





## Microplastics found deep in lungs of living people for first time

Particles discovered in tissue of 11 out of 13 patients undergoing surgery, with polypropylene and PET most common

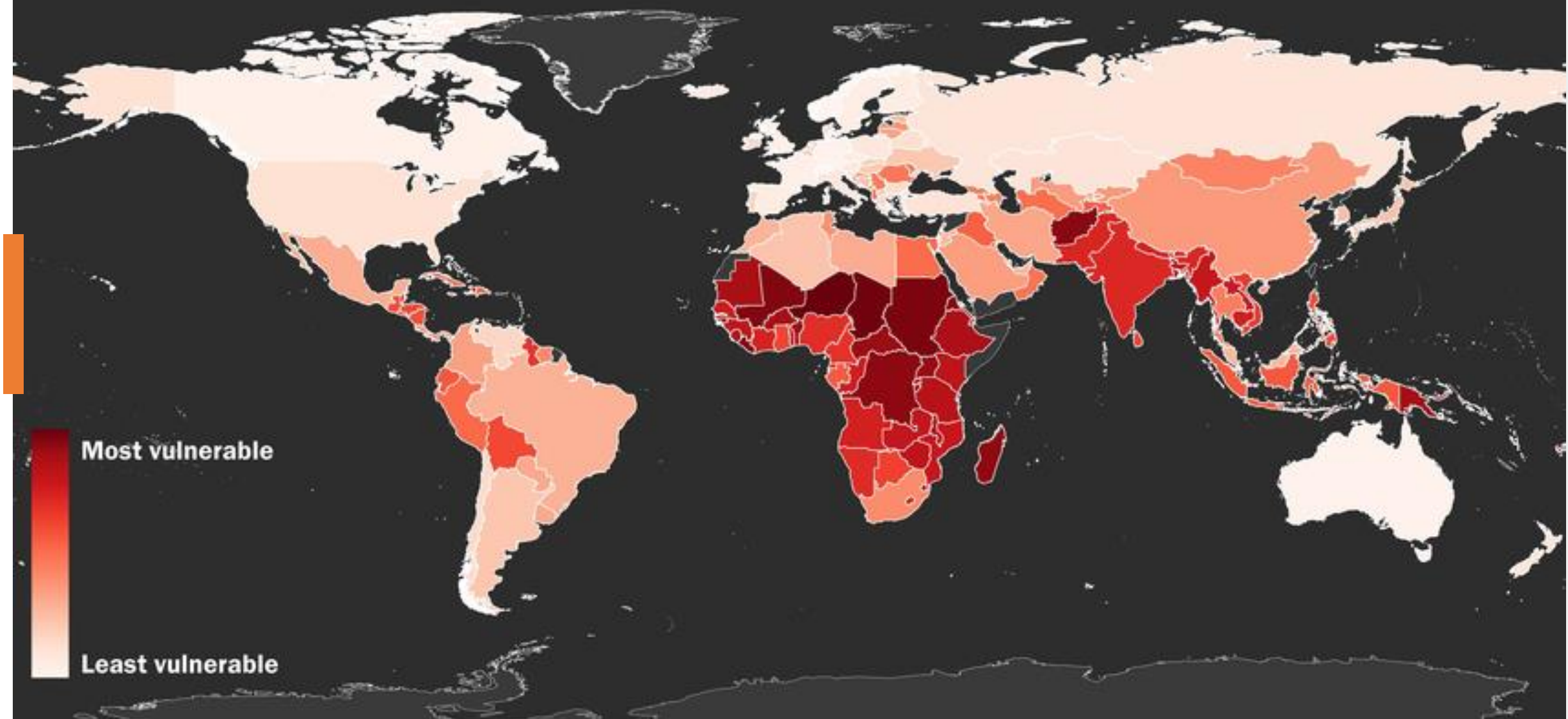


## Microplastics found in human blood for first time

Exclusive: The discovery shows the particles can travel around the body and may lodge in organs



# ND-GAIN Vulnerability





The infographic features a dark blue background with a glowing blue horizon line representing the Earth. Three vertical smokestacks are positioned across the horizon, each emitting a plume of white smoke that rises into the sky. The central stack is the tallest and emits the largest plume. The background is dotted with small white stars, suggesting a space or night sky theme.

# HEALTHCARE

in world's largest economies

**4%**

of  
global emissions

SHIPPING

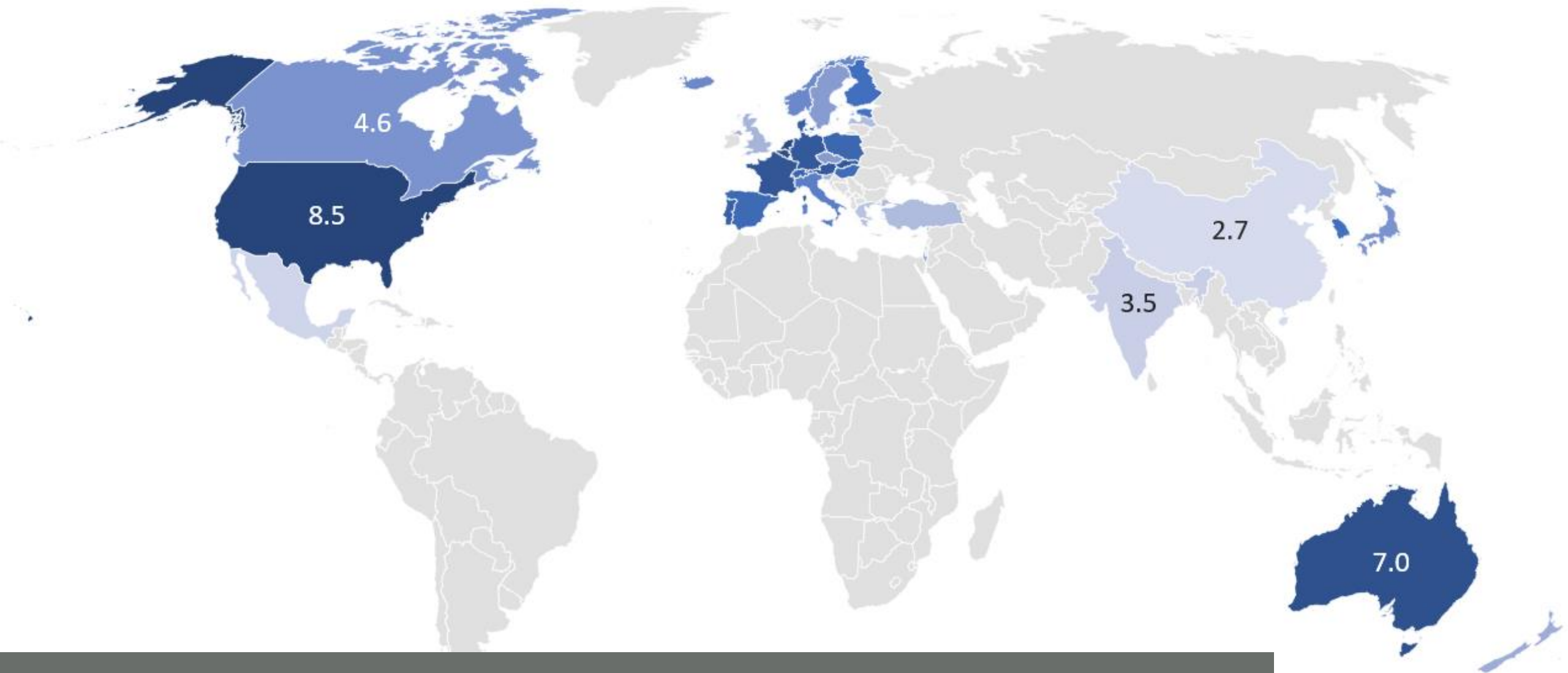
**2-3%**

of global emissions

AVIATION

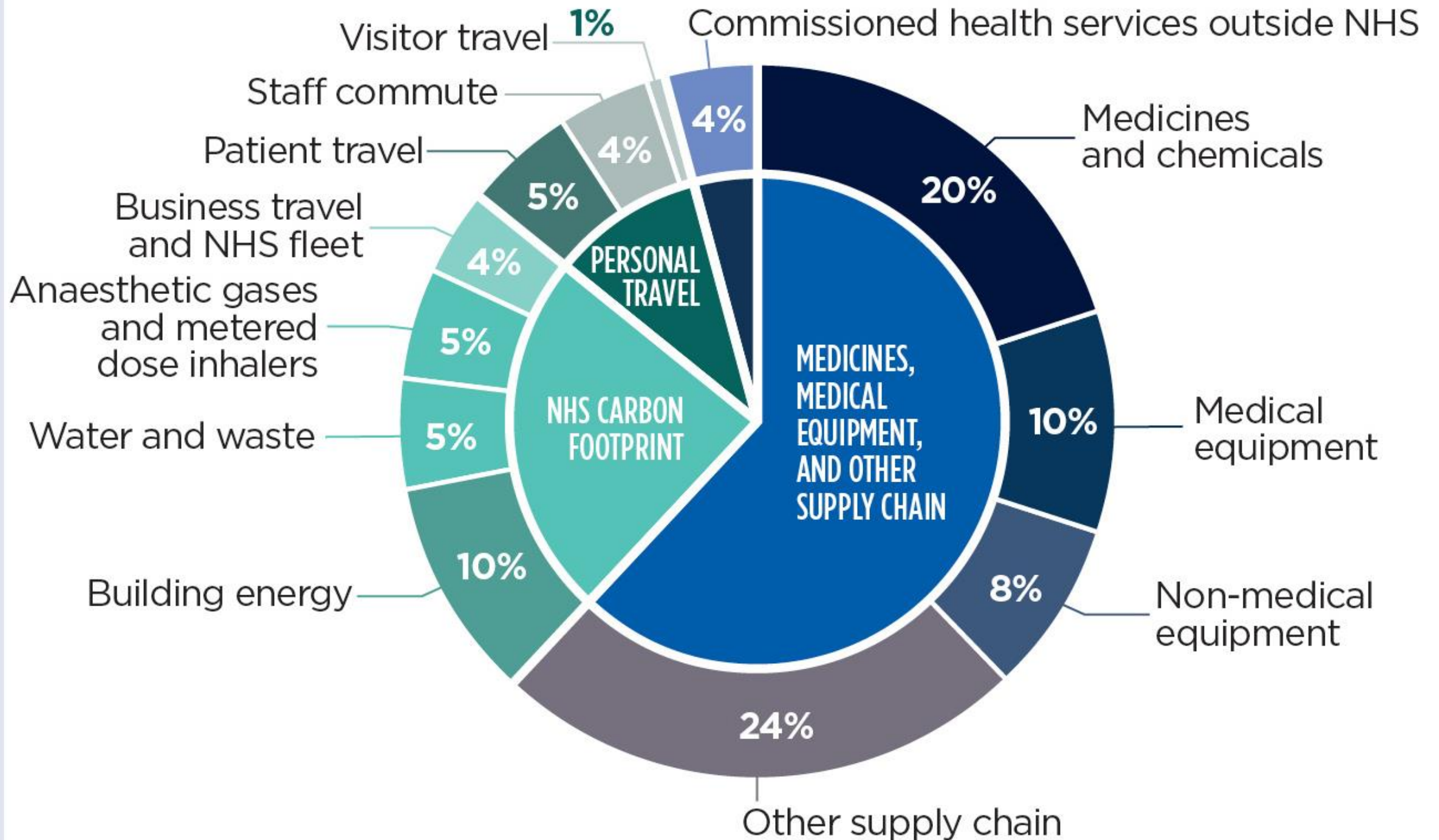
**2.4%**

of global emissions



# Carbon Footprint of National Health Systems

Health care emissions per capita by country				
Top emitters: (over 1t per capita)	Major emitters (between the 0.50t and 1t per capita)	Higher than average emitters (between global average 0.28t and 0.50t per capita)	Lower than average emitters	Unknown
Australia	Austria	Bulgaria	Brazil	Rest of World (ROW)
Canada	Belgium	Cyprus	China	
Switzerland	Denmark	Czech Republic	Croatia	
United States	Estonia	France	Hungary	
	Finland	Greece	India	
	Germany	Italy	Indonesia	
	Ireland	Malta	Latvia	
	Japan	Poland	Lithuania	
	Korea	Portugal	Mexico	
	Luxembourg	Slovenia	Romania	
	Netherlands	Spain	Slovak Republic	
	Norway	Sweden	Turkey	
	Russia	European Union		





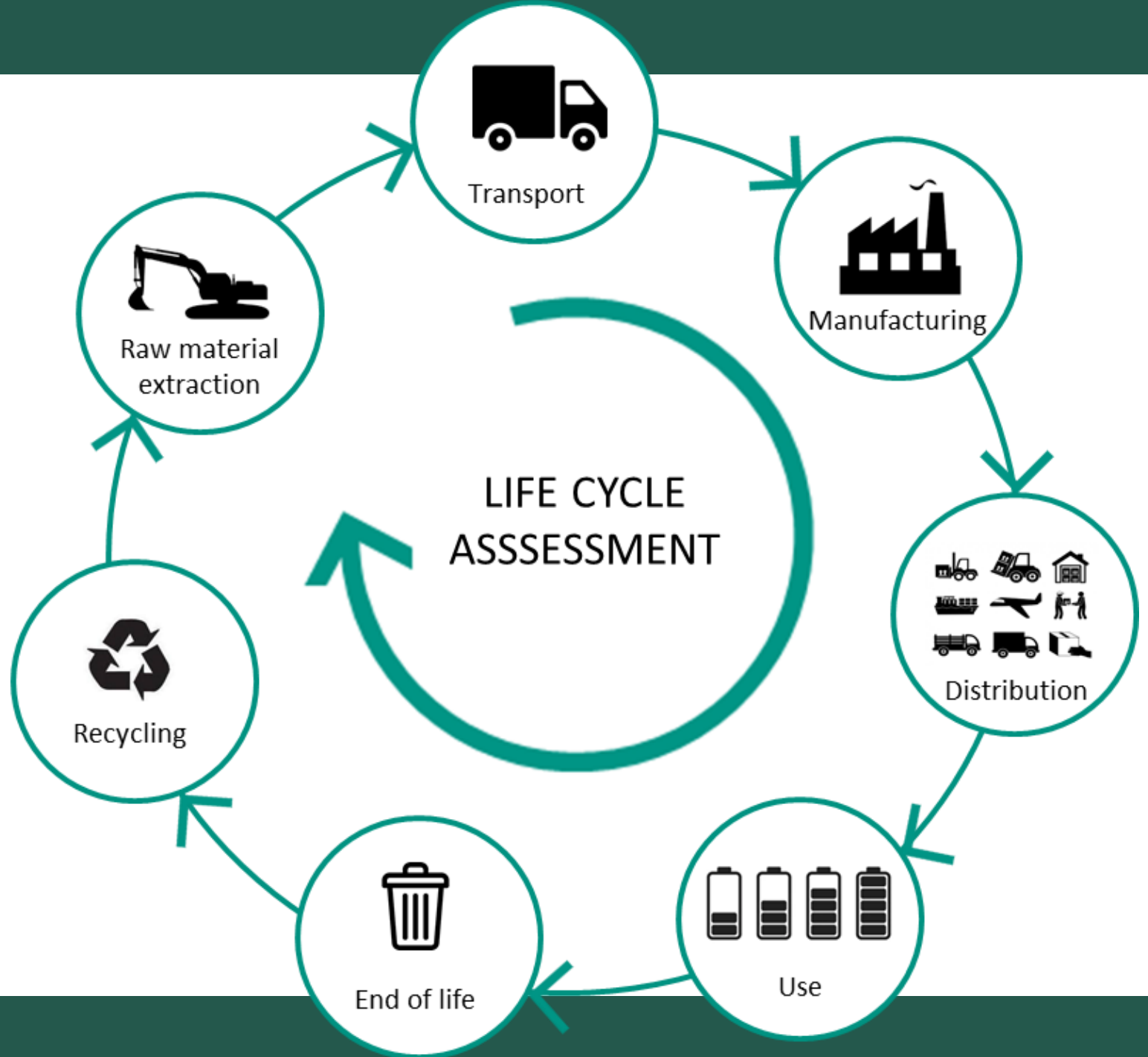
EXIT

Out Of The Hospital...  
CheckOuts April 2011 - 2012



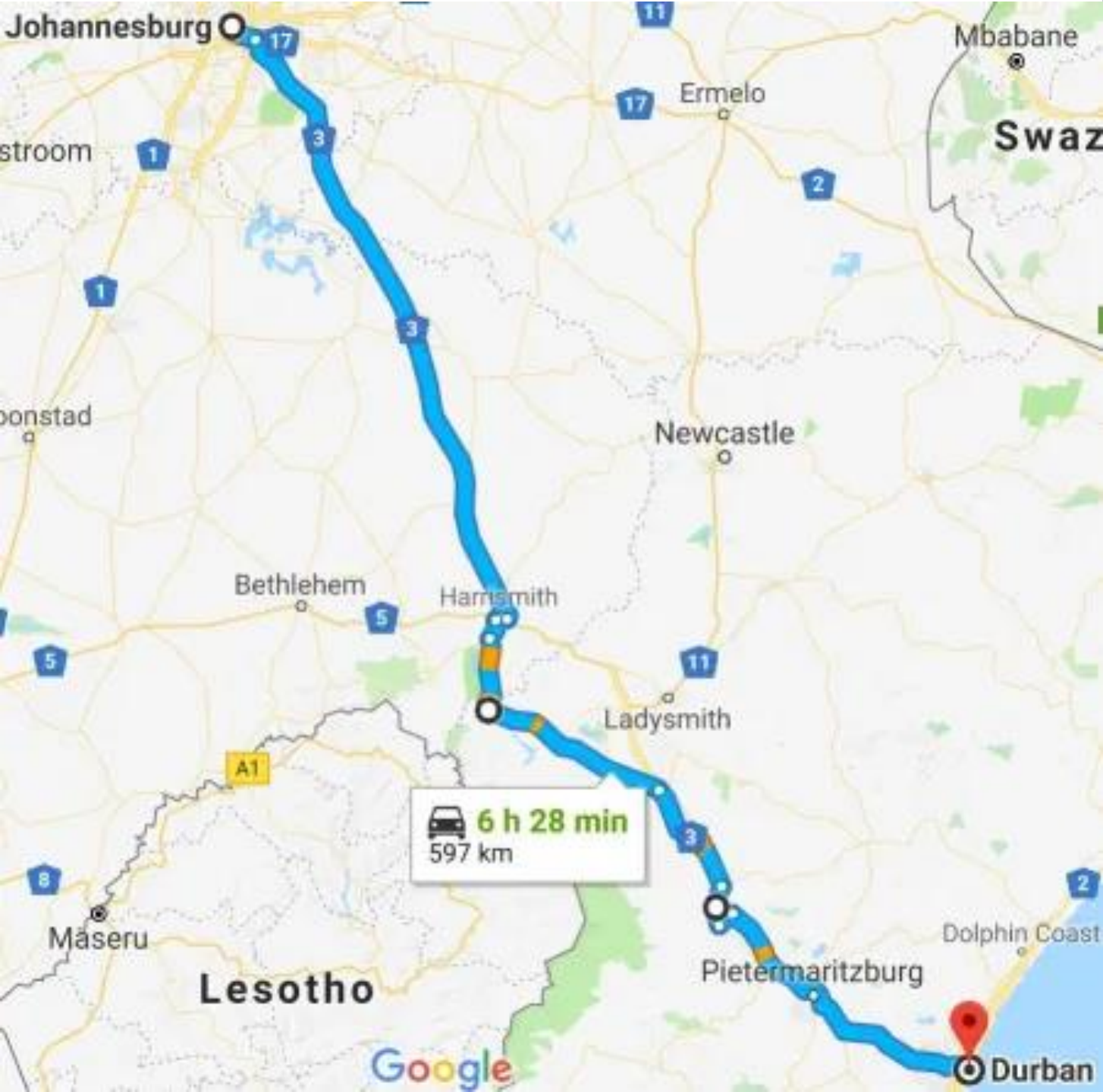






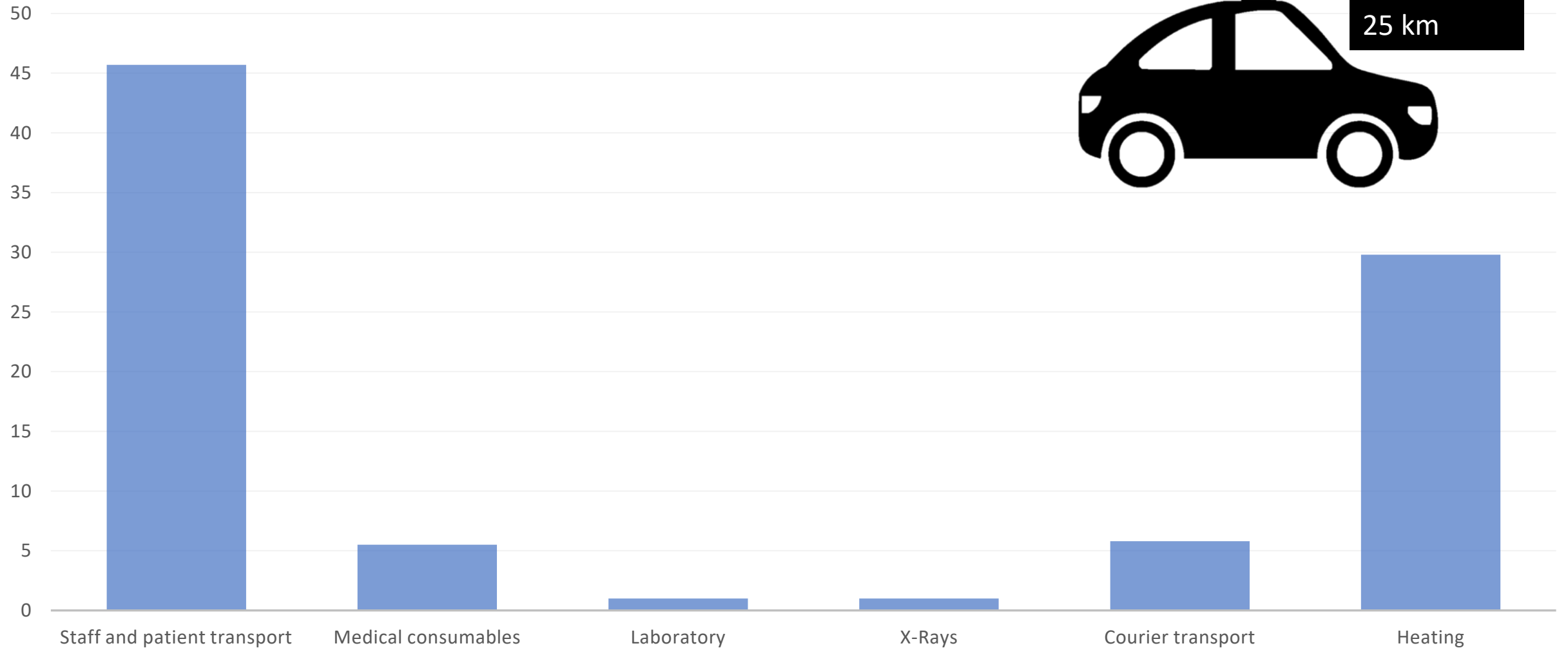








# An average medical consultation generates 4.8 kg of CO<sub>2</sub>eq

















**U+E 99g CO<sub>2</sub>e**

**INR 82g CO<sub>2</sub>e**

**FBC 116g CO<sub>2</sub>e**

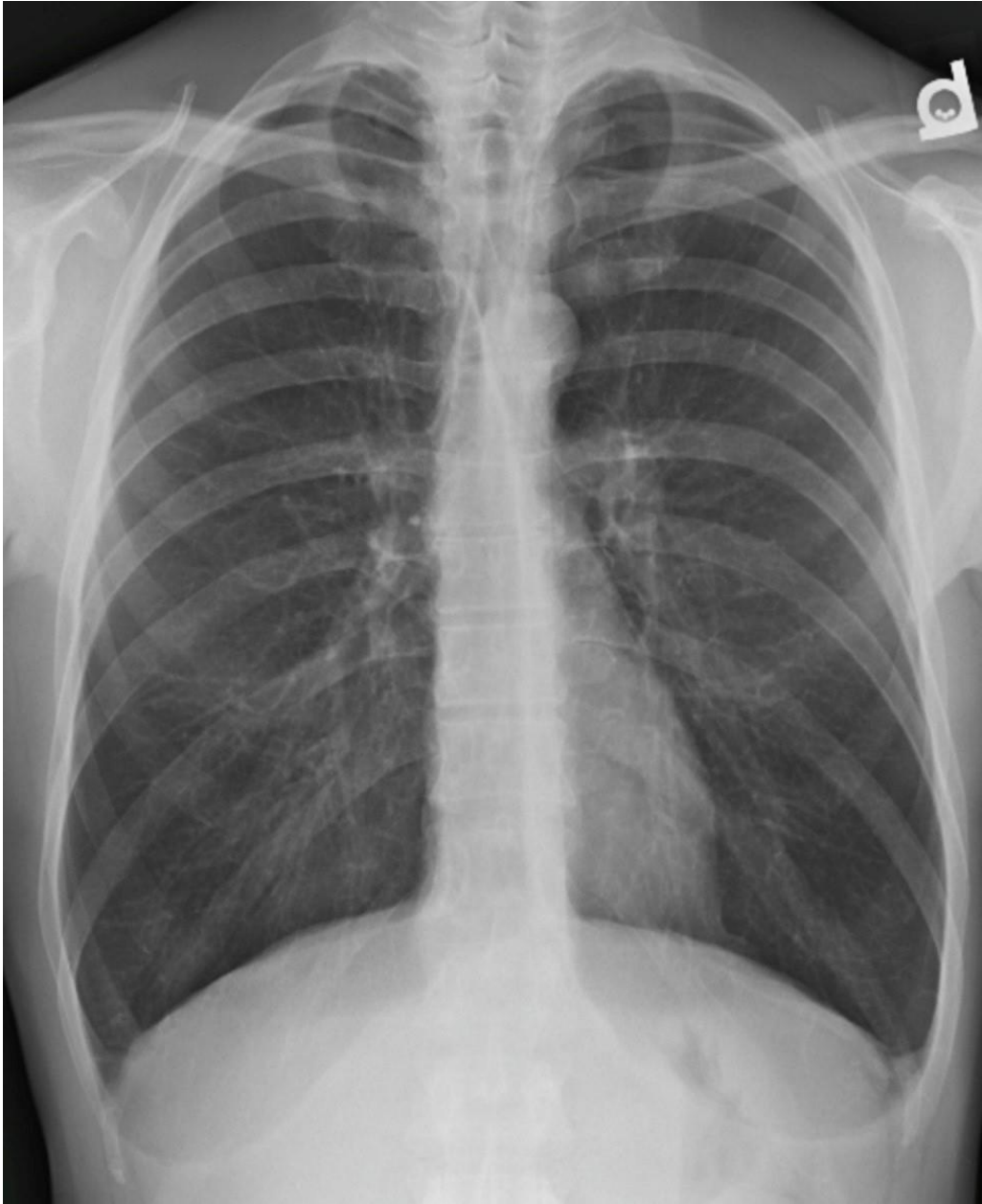


**Researchers at a teaching hospital in the US reduced their carbon footprint by 162.4 metric-tonnes CO<sub>2</sub>e and eliminated 50.2 tonnes of plastic by switching to reusable sharps containers**



664 123km

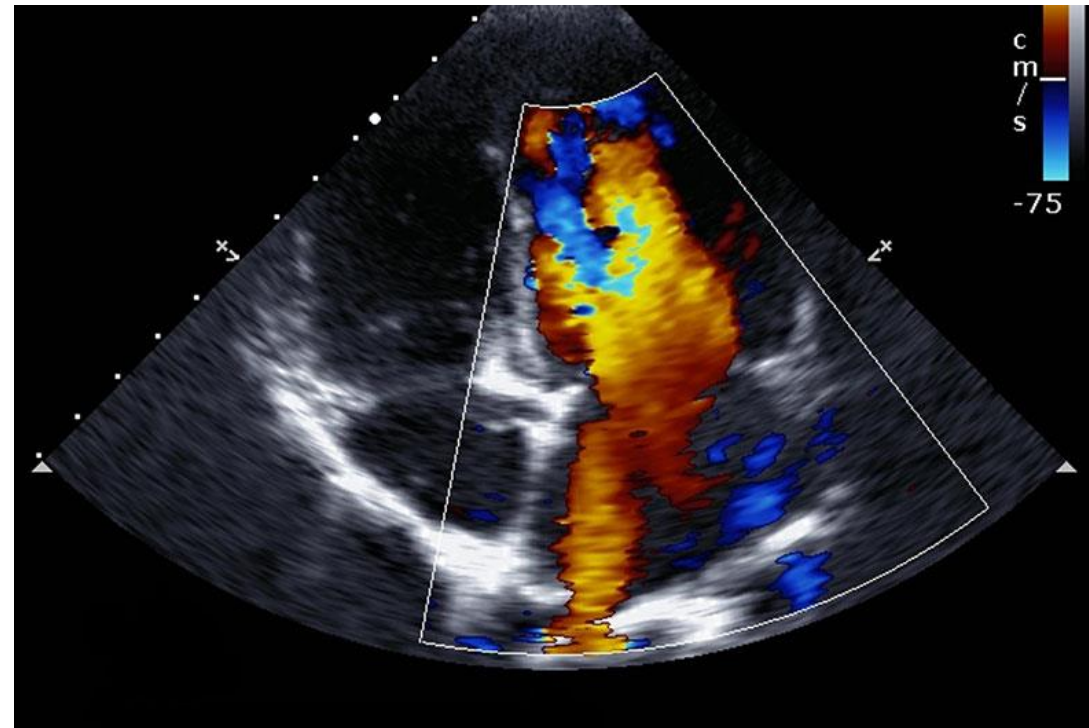
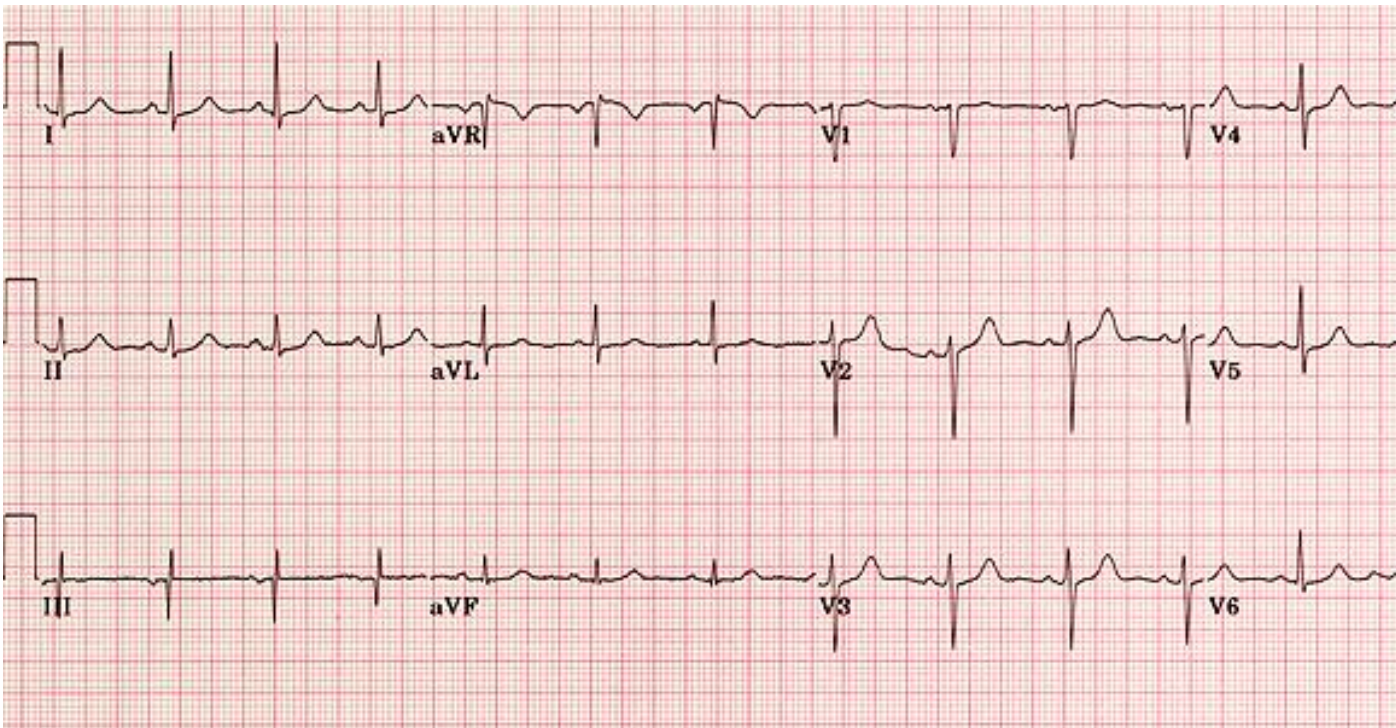




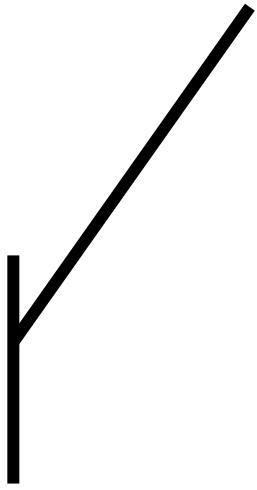
Research on carbon footprints in radiology is lacking, but a single MRI can produce between 200 to 300 kg of CO<sub>2</sub>e



1010 km

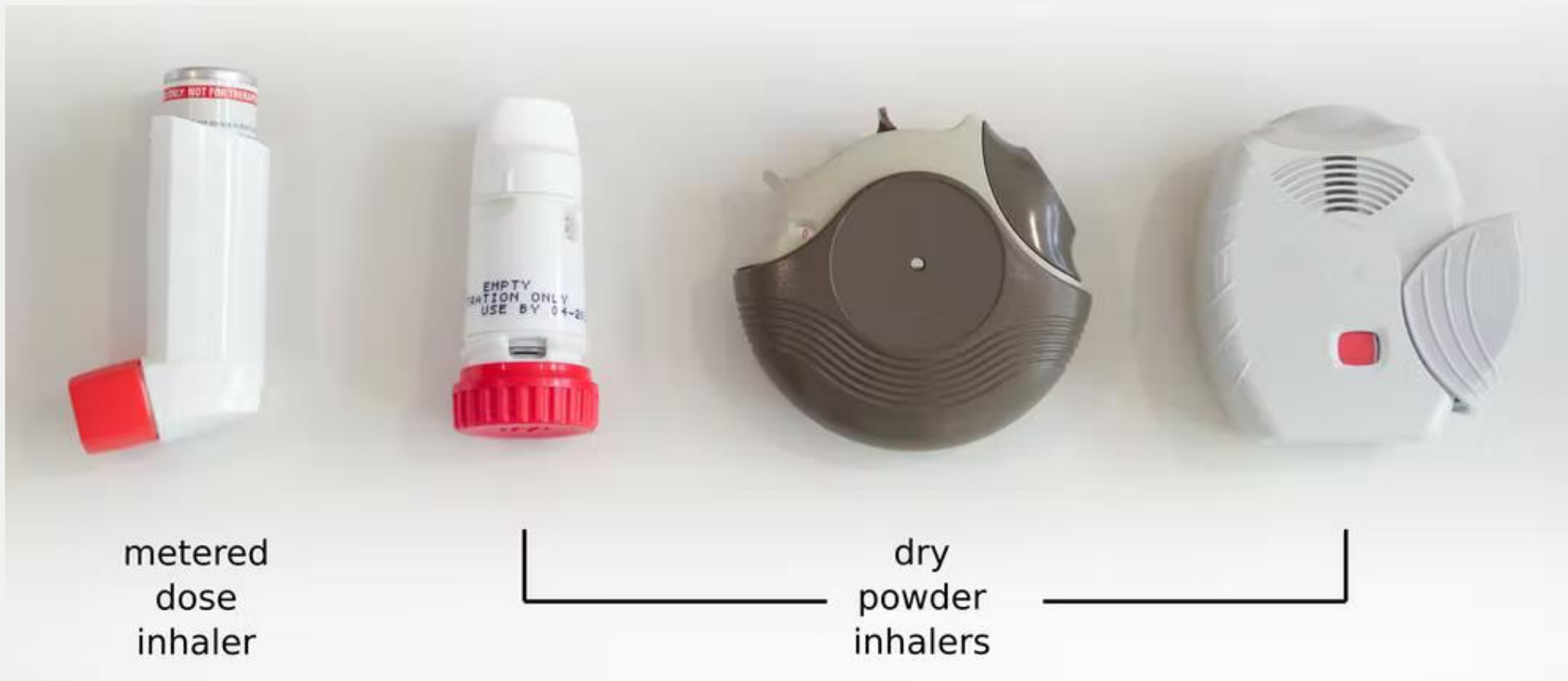


2kg CO<sub>2</sub>e









The hydrofluoroalkane propellant in metre dose inhalers is estimated to be 3800 times more polluting that carbon dioxide and 30 times more damaging than dry power inhalers

In the UK, 58 kilo-tonnes CO<sub>2</sub>e could be saved annually for every 10% of metre dose inhalers switched to dry powder inhalers

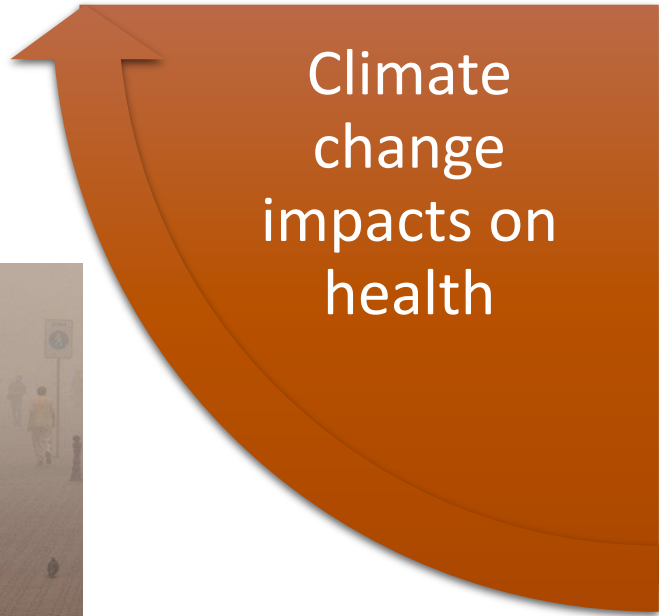


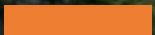












Prevention

Primary care shift

Low-carbon transport

Telemedicine

Energy optimisation

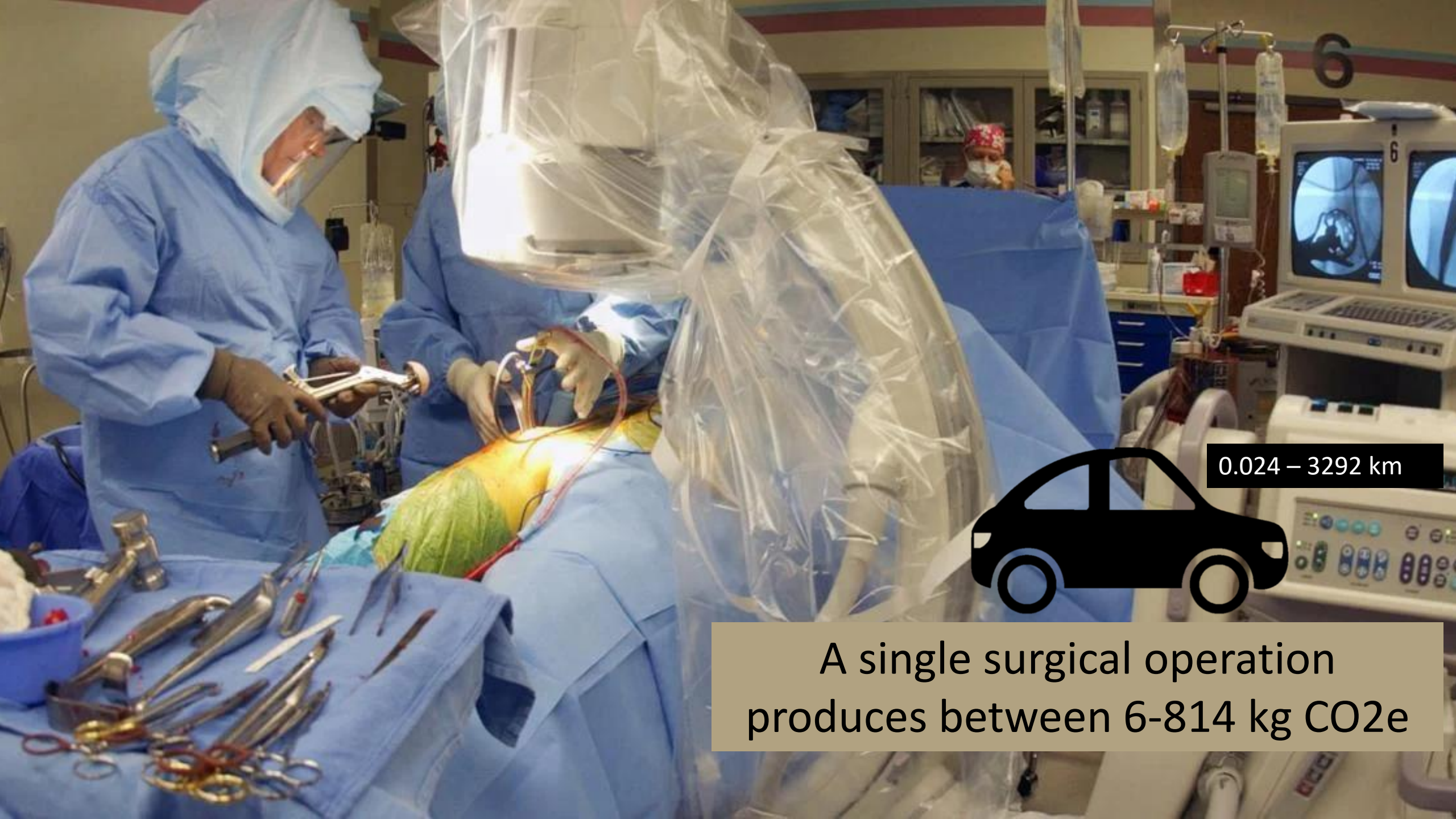
Infrastructure efficiency

Device reprocessing

Low-carbon prescribing

Circular economy





0.024 – 3292 km



A single surgical operation produces between 6-814 kg CO<sub>2</sub>e

Haemodialysis is highly energy intensive, uses huge quantities of water which must first undergo decontamination through reverse osmosis water filtration and generates about 2.5kg of hazardous waste per treatment

Thrice-weekly in-centre haemodialysis produces 3.8 tons CO<sub>2</sub>e per year



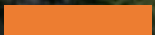
13 943 km



The carbon footprint of an ICU bed  
178kg CO<sub>2</sub>e per day in an USA ICU and  
88kg CO<sub>2</sub>e emissions per day in an  
Australian ICU

355 – 719 km





Prevention

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Does my patient need this (appointment, test, treatment)?

Yes

No

Is this the option that has the lowest environmental impact?

Don't do it

Yes

No

Use it

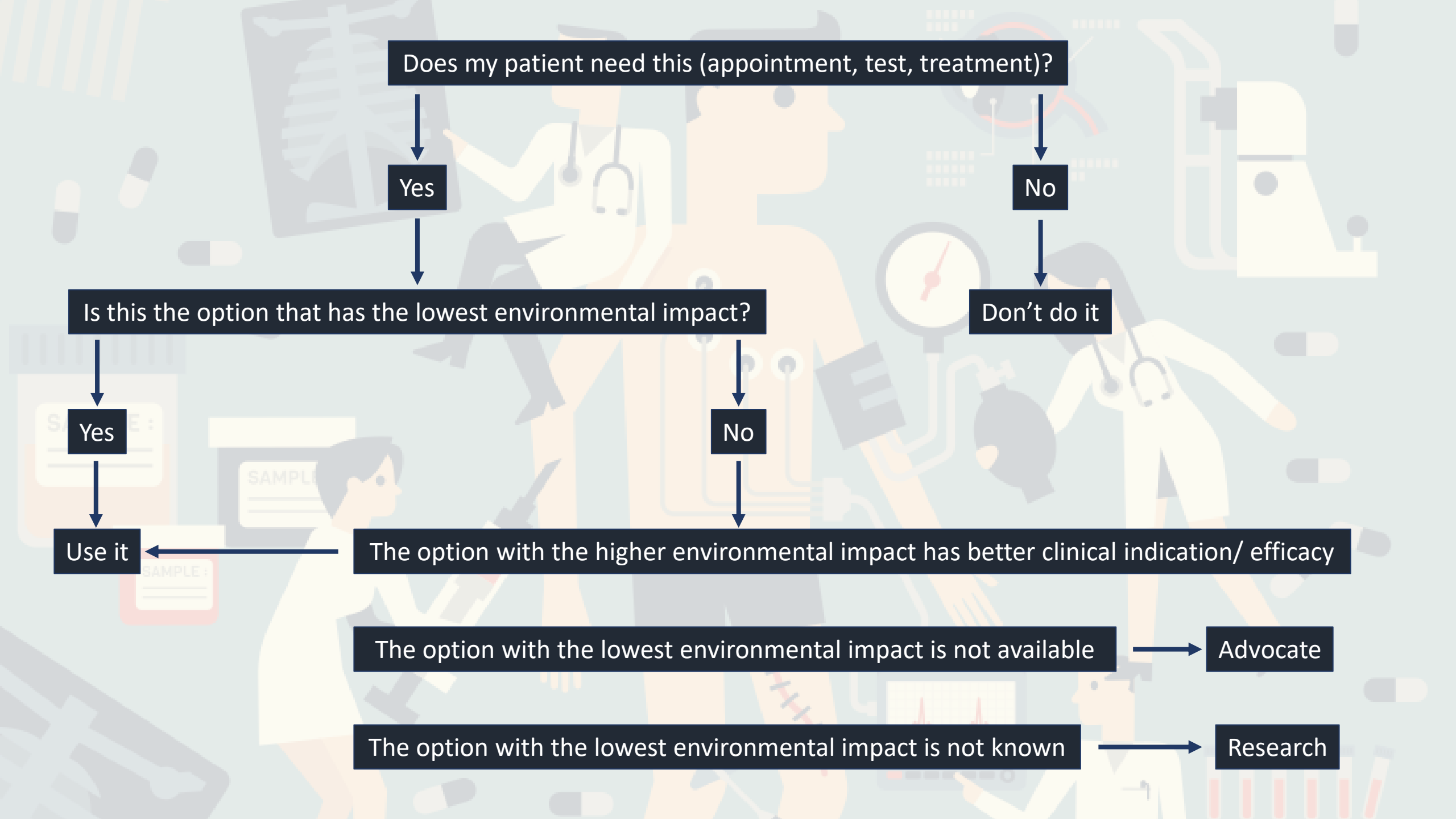
The option with the higher environmental impact has better clinical indication/ efficacy

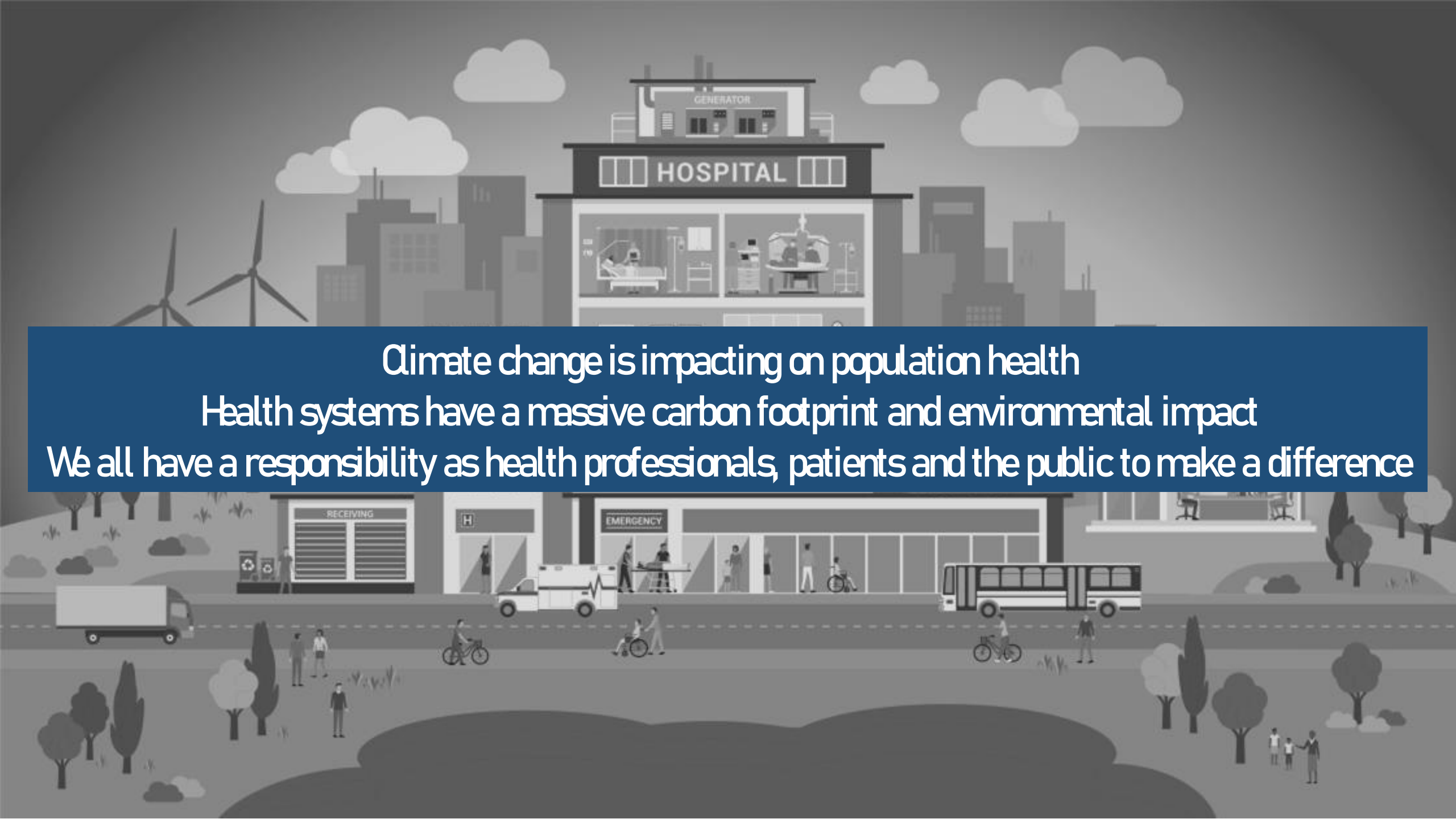
The option with the lowest environmental impact is not available

Advocate

The option with the lowest environmental impact is not known

Research





Climate change is impacting on population health

Health systems have a massive carbon footprint and environmental impact

We all have a responsibility as health professionals, patients and the public to make a difference





# THANK YOU

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Amy Booth  
University of Oxford



amy.booth@gtc.ox.ac.uk

