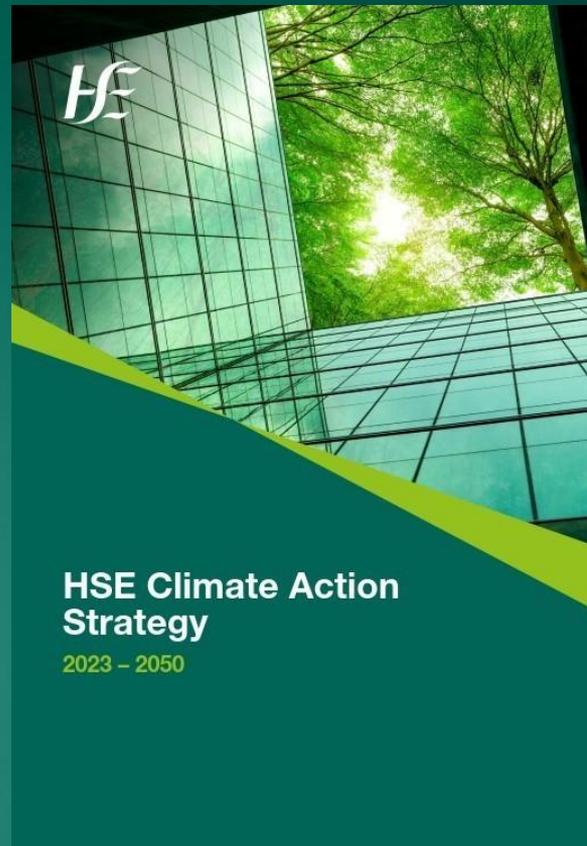




# The HSE Climate Action Strategy and Greening Models of Care

National Clinical Programme Leads Day

29<sup>th</sup> November 2023





# Agenda

1. Introduction
2. HSE Climate Action Strategy (2023 - 2050)
3. Greener Models of Healthcare and Examples of Carbon Hotspots
4. The Pivotal Role of Clinicians



# Introduction

1



# Climate - The everything emergency

Friday  
6 October 2023  
£2.80  
From £2.03 for subscribers

Scientists stunned by planet's record September heat

# The Guardian

Newspaper of the year

# Out of control

News, page 4

September 2023 was the warmest on record

GLOBAL AVERAGE SURFACE TEMPERATURE ANOMALIES RELATIVE TO 1991-2020, EACH SEPTEMBER

'I'm still struggling to comprehend how a single year can jump so much compared to previous years'

Mika Rantanen  
Climate researcher

1940 | 1960 | 1980 | 2000 | 2020

***2023 most extreme weather conditions in human history***

***The greatest threat to our planet is the belief that someone else will save it***

***Robert Swan***



# Why Climate and Sustainability Focus

## Sustainability analysts and capital providers are asking

Disclosure of climate related information, risks and performance, intent on incorporating them within financial filings.



## Regulation and sector guidelines are increasing



*EU CSRD requires external assurance over sustainability data*

*EU Taxonomy defines environmentally sustainable economic activities*



*TCFD-aligned disclosures mandatory across the UK economy by 2025,*

## Society is asking

Some Key Public Body Actions:

Reduce GHG Emissions from the Public Sector by 51%

Increase energy efficiency in the public sector to 50% by 2030.

Develop Green Public Procurement Strategy and Plans

Specify low construction carbon methods

Sustainable Mobility & Active Travel Policy

Update roadmaps annually and report

*“Climate Action Plan will require radical transformation of Irish economy and society”*

**net-zero**  
emissions by 2050

## The Workforce Cares

A sense of purpose can be a key driver in workforce engagement,

**40%**

Higher levels of workforce retention

**83%**

Millennials said they would be more loyal to a company that helps them contribute to social and environmental issues

## Service users care

Expectations of lower carbon options

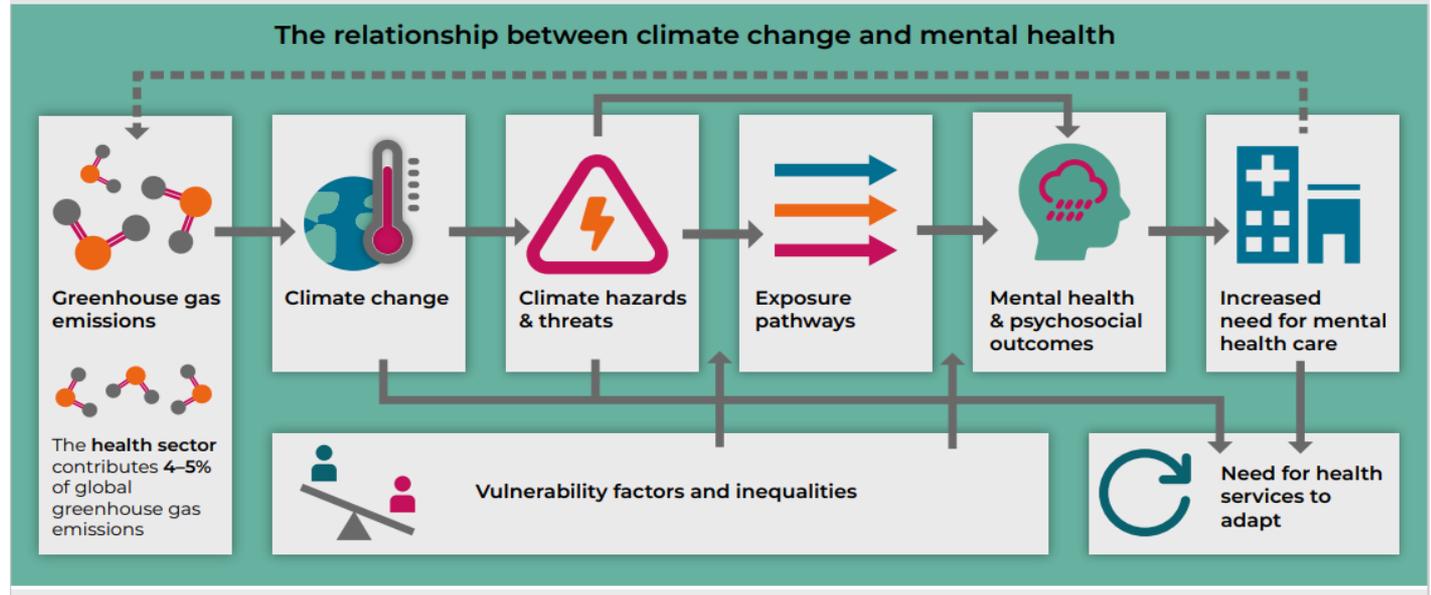
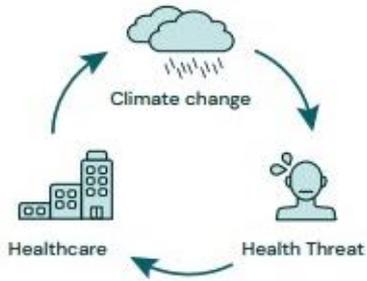


**CLIMATE ACTION PLAN 2023**  
CAP23

Changing Ireland for the Better



# The Climate Crisis is a Health Crisis



One in four deaths can be attributed to preventable environmental causes (WHO, 2023)



# Impact is 2 fold: 1: Climate Impact on Health

The HSE must lead a preventive approach to avoiding the negative impacts of climate change on the health of our citizens.

## Climate-sensitive health risks

### Health outcomes



Injury and mortality from extreme weather events



Heat-related illness



Respiratory illness



Water-borne diseases and other water-related health impacts



Zoonoses



Vector-borne diseases



Malnutrition and food-borne diseases



Noncommunicable diseases (NCDs)



Mental and psychosocial health

### Health systems & facilities outcomes



Impacts on healthcare facilities



Effects on health systems



# The evidence is clear

thebmj covid-19 Research Education News & Views Campaigns Jobs

## Editorials

Call for emergency action to limit global temperature increases, restore biodiversity, and protect health

BMJ 2021; 374 doi: <https://doi.org/10.1136/bmj.n1734> (Published 06 September 2021)

## Climate Crisis Is Generating Global Health Crisis, UN Agency Says



FILE - A man and a boy walk across the dried bed of the Yamuna River in New Delhi, India, May 3, 2022. In an annual climate report, the World Meteorological Organization said Nov. 3, 2022 that the climate crisis was accelerating a global health crisis.

## Catherine Conlon: Even after the flood clean-up, beware of the health risks posed by contaminated water



## Measuring the Burden of Climate-Related Asthma in Ireland via Microsimulation and Hybrid Costing

G Di Capua, P Hynds, J O'Dwyer, A Priyadarshini

European Journal of Public Health, Volume 33, Issue Supplement\_2, October 2023, ckad160.1019,

Irish Independent + Follow

Excessive heat linked to climate change is increasing the risk of kidney disease, doctors warn

## Environmental risk factors associated with respiratory diseases in children with socioeconomic disadvantage

Javier Cortes-Ramirez<sup>1, 2, 3</sup>, Juan D Wilches-Vega<sup>3</sup>, Olga M Paris-Pineda<sup>3</sup>, J E Rod<sup>4, 5</sup>, Lkhagvadulam Ayurzana<sup>6</sup>, Peter D Sly<sup>2</sup>



# The Impact is two-fold:

## 2. Healthcare impact on emissions

If the Global health care sector were a country it would be the 5th largest emitter on the planet.



7 hours of anesthesia with desflurane (2l/min) =  
**15.700 km car ride**



1 metered aerosol =  
**280 km car ride**

½ ton difference of CO<sub>2</sub>e between metered & dry powder inhaler = difference between a veg & meat diet

Global health care climate footprint = annual GHG emissions of  
**514 coal plants**



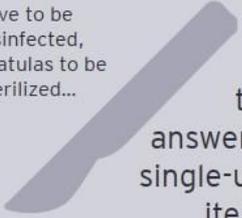
**0,56t CO<sub>2</sub>e**

Average European health sector carbon footprint per capita\*

One box of gloves and 8 incontinence pads used per day per patient



Spoons would have to be disinfected, spatulas to be sterilized...



the answer is single-use items



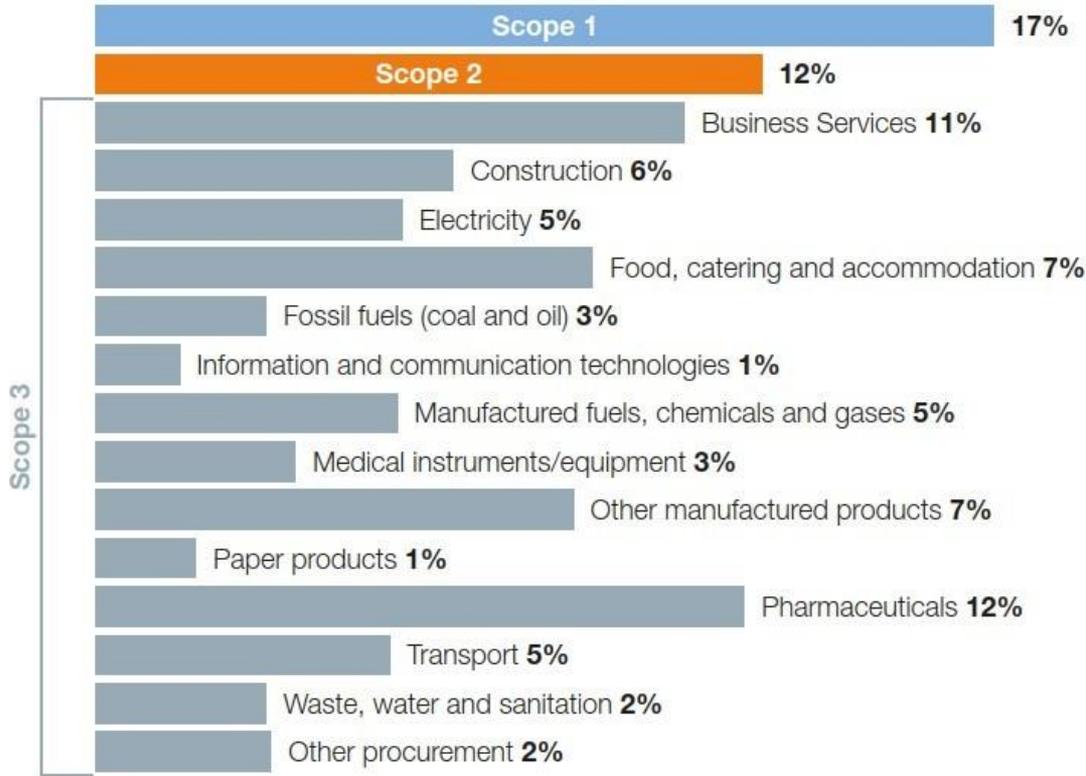
Throwing away **one plastic surgical gown** equals the GHG effect of **washing it 20x**

In Europe, healthcare accounts for about  
**~5%**  
of the total carbon footprint





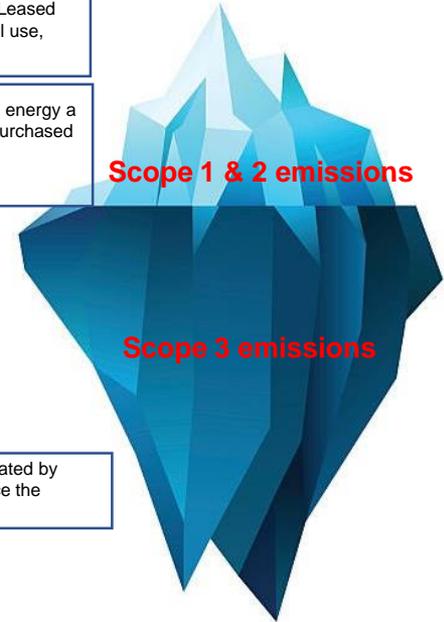
# Overview of Carbon Emissions in Healthcare



**Scope 1:** emissions created by the business itself. Owned and Leased buildings (on-site fossil fuel use, HSE fleet vehicles).

**Scope 2:** emissions from the energy a business uses to operate. (purchased electricity).

**Scope 3:** emissions created by other entities to service the business.



# HE Pop Quiz 1

**Where does Ireland rate amongst other major health care emitters per capita globally?**

A. Among the lower-than-average emitters (less than 0.28t per capita)

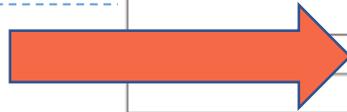
B. Among the higher-than-average emitters (between 0.28t and 0.5t per capita)

C. Among the major emitters (between 0.5t and 1t per capita)



# Ireland and the Rest of the World

Ireland is among the major health care emitters per capita globally



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		
	Taiwan			
	United Kingdom			

Source: Health Care Without Harm, 2019.



# HSE Climate Action Strategy (2023 – 2050)

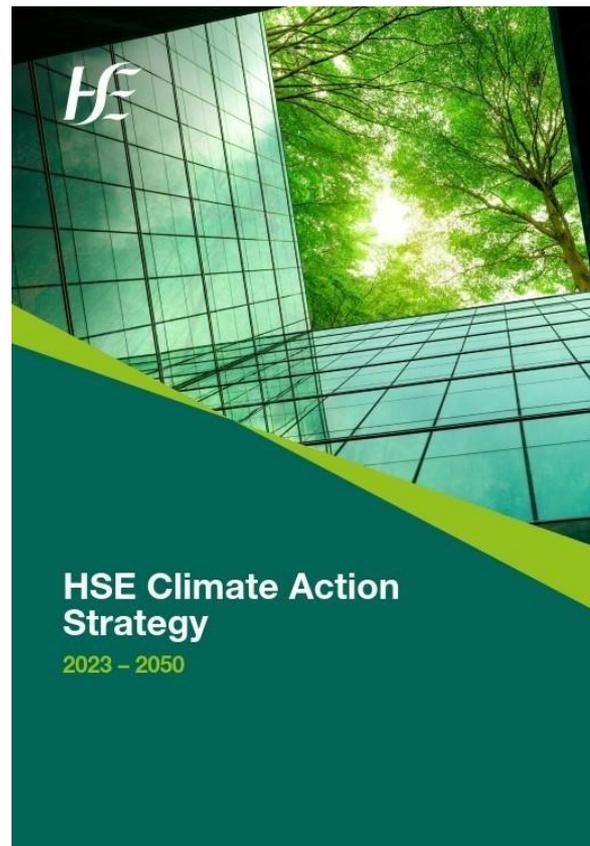
2



# HSE Climate Action Strategy Overview

The HSE Climate Action Strategy 2023-2050:

- was developed in a consultative manner.
- supports the delivery of key HSE strategic goals as they relate to climate action.
- responds to and outlines a broader approach to the actions and targets set out in the Government's Climate Action Plan.
- will be a multi-year programme updated and reviewed against any emerging legislation, WHO recommendations, national policy, and the updated DoH Climate Adaptation Sectoral Plan etc.
- will be reported to the Board of the HSE on a regular basis.





# HSE Climate Action Strategy Overview

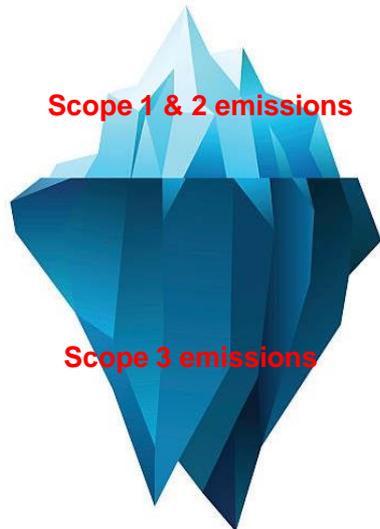
## ***Vision Statement:***

***The HSE is committed to achieving net-zero emissions no later than 2050, delivering healthcare which is environmentally and socially sustainable***





# HSE Climate Action Strategy Overview



*Health Care without Harm Europe*

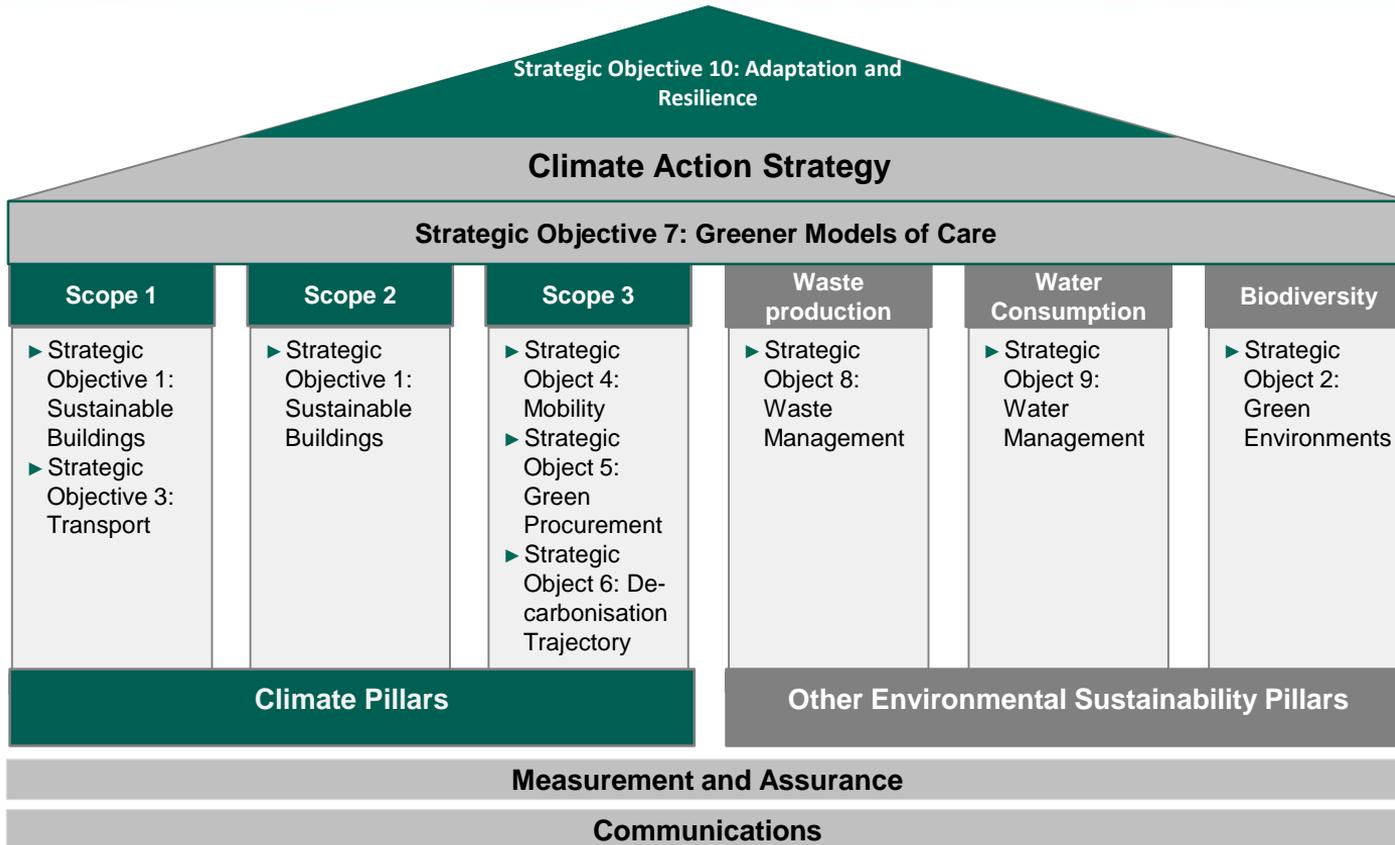
## 10 Strategic Objectives:

- 1 Reduce our energy related GHG emissions
- 2 Better utilise and promote our green spaces
- 3 Decarbonise our fleet
- 4 Promote low carbon and active travel initiatives
- 5 Align purchasing decisions with our decarbonisation and sustainability goals
- 6 Baseline our supply chain emissions
- 7 **Develop greener models of healthcare delivery**
- 8 Reduce and manage waste
- 9 Conserve and reduce water usage
- 10 Protect and promote the health and welfare of the public

## AND TO SUPPORT IMPLEMENTATION WE WILL:

- A Set up a Communication and Training Group
- B Measure and report on progress at regular intervals

# HS Programme Structure and Synergies



## Programme Deliverables

1. Current-state Assessment

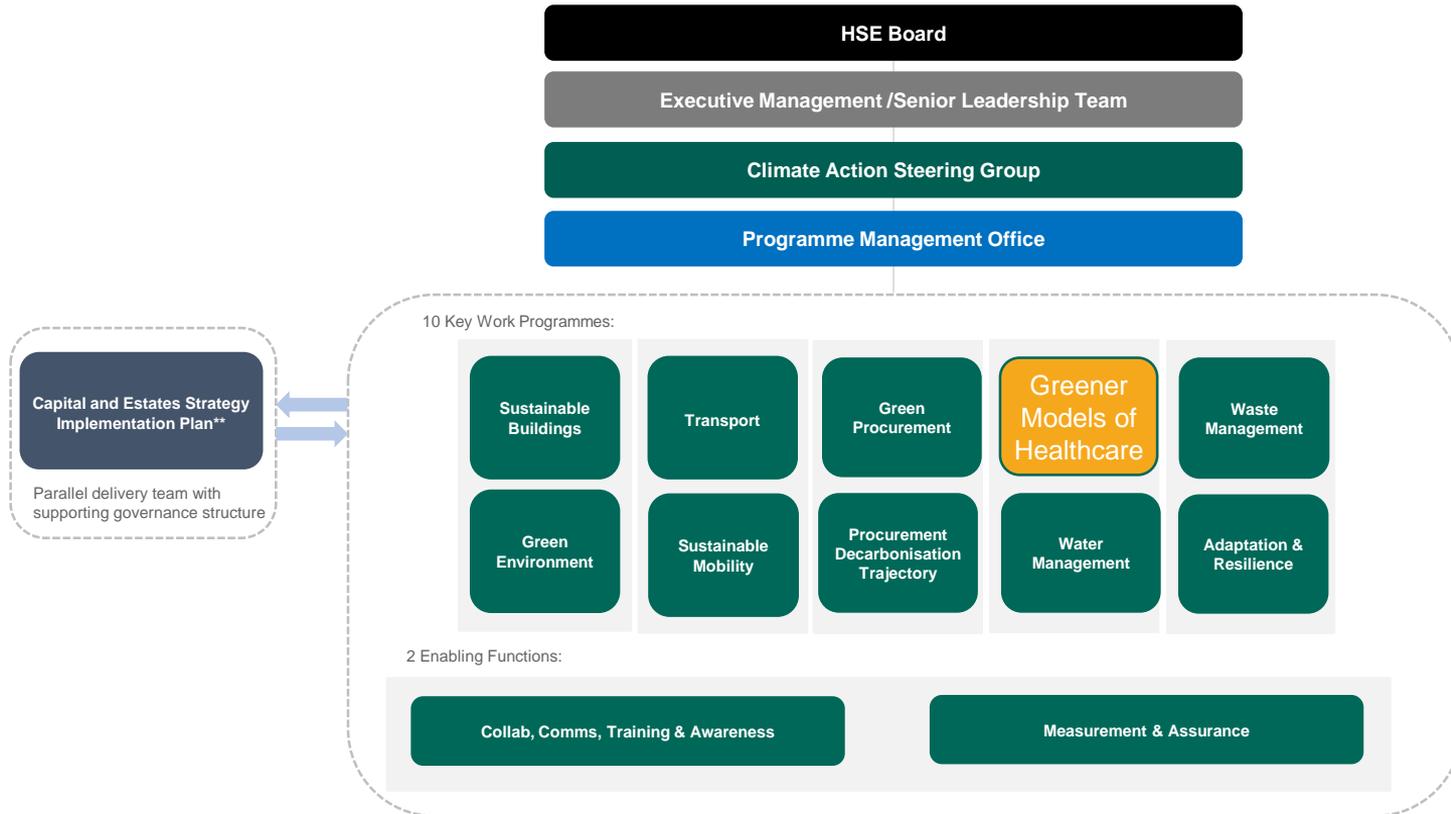
2. Best-practice Review

3. Early Mobilisation Initiatives

4. Strategic Framework

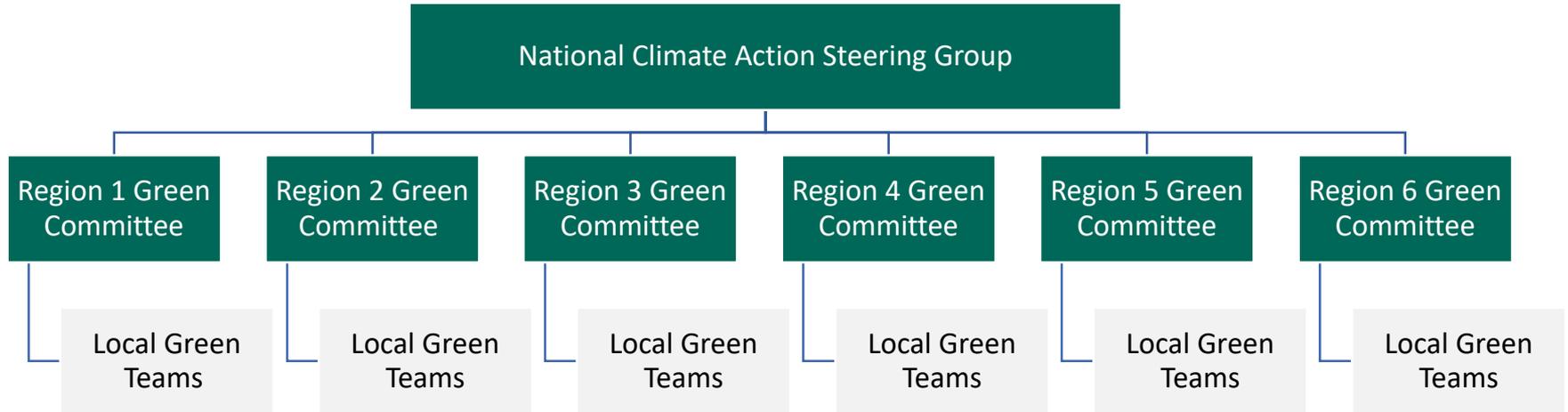


# Implementation Programme





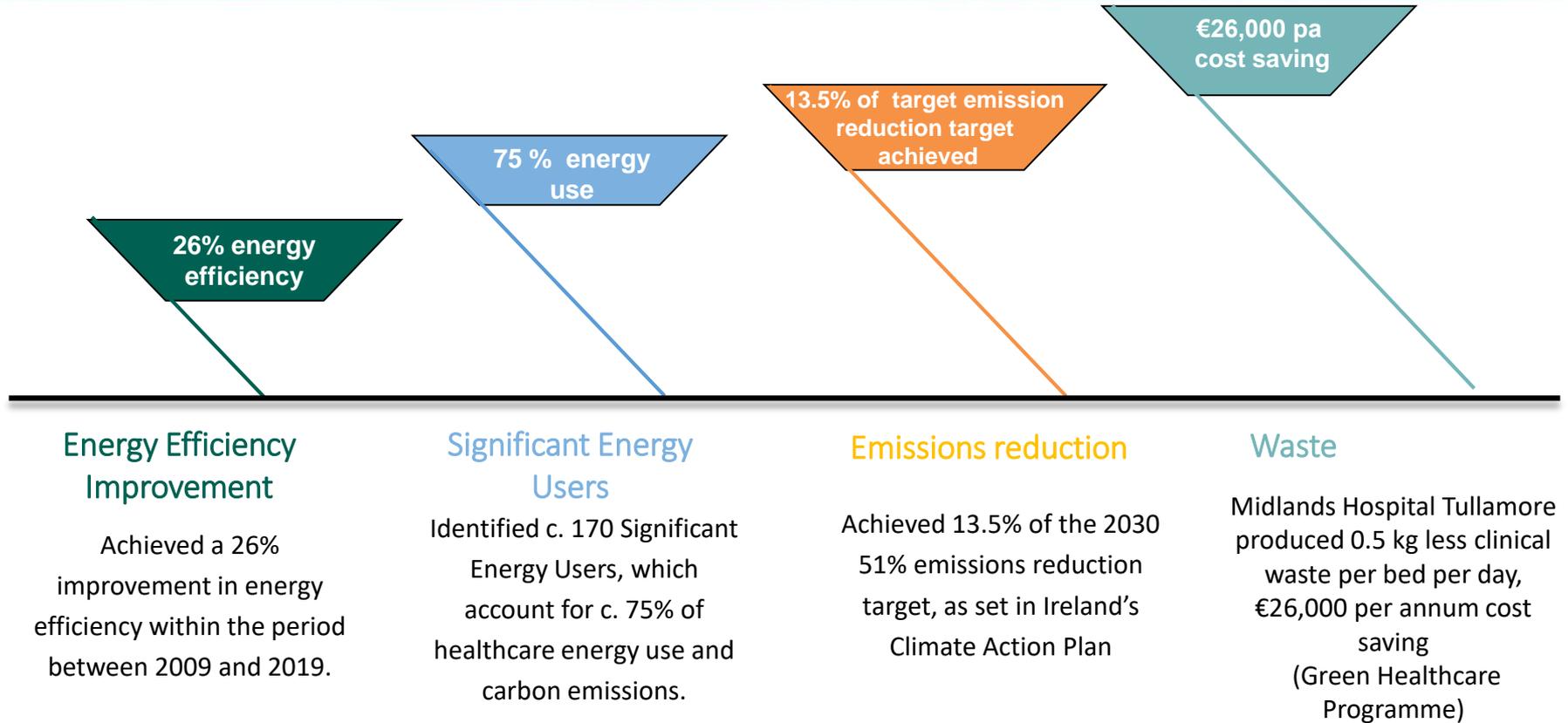
# Regional Implementation: Proposed Structure



- New approach aims to strike right balance between national efforts for a sustainable healthcare system and regional and local ownership to drive sustainable change on the ground.
- 6 Regional leads who will sit on the National Climate Action Steering Group.
- Create Networks at region level of Green teams to share, collaborate and spread.



# Some Achievements to date





# Call to action

Our 130,000 workforce is central to the successful development and delivery of this Strategy



## PASSION FOR ACTION

Passionate, interested staff who care



## CLIMATE ACTION COMMUNITY

COVID 19 demonstrated how a clear and common purpose galvanises staff effectively.



## A PARTNERSHIP APPROACH

Multi-organisation commitment to joint action needed.



# Internal Staff Communication Campaign

HSE Staff Survey 2023 **6 in 10** are interested in being involved in activities to support positive climate action. Interest is highest among voluntary community health staff and those who are working in the Health Service for less than two years.

**We're Taking Climate Action**

- 1 Sustainable Buildings and the Green Environment
- 2 Transport and Mobility
- 3 Sustainable Procurement
- 4 Greener Models of Healthcare
- 5 Water and Waste Management
- 6 Adaptation and Resilience

Visit [hse.ie/climateandhealth](https://hse.ie/climateandhealth) for more information #climateaction

**We're taking climate action**

## 4 Greener Models of Healthcare

Simple things you can do

- Be an active promoter for healthy living - prevention is the most sustainable healthcare of all.
- Quality and safety for patients and staff are first priority.
- Think before you open, will it be used or possibly wasted
- Reuse clinical and medical products when safe to do so.
- Consider environmental impact of medications.
- In your work, use online meetings and consultations.

Visit [hse.ie/climateandhealth](https://hse.ie/climateandhealth) for more information

#ClimateAction

**We're taking climate action**

## 6 Adaptation and Resilience

Simple things you can do

- Educate yourself about the impact of climate change.
- Speak to colleagues about concerns and how they can take positive action to ensure your workplace has been adapted to protect the health and safety of all who use them.
- Consider has your service been affected by severe weather events, like flooding, power loss, indoor overheating and impact on your area.
- Use opportunities to plan for more frequent and severe weather in the coming years.

Visit [hse.ie/climateandhealth](https://hse.ie/climateandhealth) for more information

#ClimateAction



# Our Partners



Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte



An Roinn Sláinte  
Department of Health



CAI  
SALUS DUM VIGILAMUS



RCSI

Climate+Health Alliance



Behaviour Change Programme



Environmental Protection Agency  
An Ghníomhaireacht um Chaomhnú Comhshaoil



Trinity College Dublin  
Coláiste na Tríonóide, Baile Átha Cliath  
The University of Dublin



Environmental Protection Agency  
An Ghníomhaireacht um Chaomhnú Comhshaoil



# Greener Models of Healthcare and Examples of Carbon Hotspots

3

# HSE Greener Models of Healthcare Work Programme

## Work Programme 7 – Greener Models of Healthcare

**Strategic Objective 7:** Develop a framework and a supporting implementation plan for delivery of greener models of healthcare that will reduce the environmental impact of care delivered across the value chain, while continuing to prioritise patient safety, prevention, and population health.

**Work Programme Lead:** Dr Siobhán Ni Bhriain

No	Key Actions*	Status
1	Desk research to understand current best practice.	<i>In Progress</i>
2	Develop a green initiatives repository across the Irish healthcare system.	<i>In Progress</i>
3	Identify and mobilise early mobilisation opportunities.	<i>In Progress</i>
4	Develop a HSE Greener Models of Healthcare Strategic Framework.	<i>Not Started</i>

### Wide representation such as:

Health Protection Surveillance Centre  
Lárionad Faire um Chosaint Sláinte



College of Psychiatrists  
of Ireland  
Wisdom • Learning • Compassion



# HE Approach

As part of the Greener Models of Healthcare Work Programme, two specific action groups - under the guidance of an overarching advisory group - have been identified to accelerate progress in these target areas. In addition, a partnership with AMRIC, a key stakeholder, has been established.

## Greener Models of Care Advisory Group



### Inhalers Action Group

- Transition to lower carbon alternatives e.g., DPIs or Salamol MDIs.



### Green Theatres and Anaesthetic Gases Action Group

- Reduce nitrous oxide leaks
- Decarbonise anaesthesia
- Reduce theatre waste



## AMRIC



### AMR

- Improve patient outcomes
- Improve patient safety
- Staff education and training
- Improve staff safety
- Increase awareness & understanding

# HE Pop Quiz 2

In primary care, what has the largest carbon footprint?

A. Building energy

B. Metered Dose Inhalers

C. Waste



# Carbon Hotspot: Inhaler Prescribing and Use

## Why are we prioritising it?

- In Ireland, inhalers account for 4% of all healthcare emissions and 25% of primary care emissions.
- The majority (97%) of this carbon footprint is due to the high usage of MDIs, which contain vast amounts of propellant with a powerful greenhouse effect.
- Lower carbon alternatives are available such as dry powder inhalers (DPIs) or soft mist inhalers (SMIs).

MDIs account for 59% of inhaler units dispensed in Ireland but account for 97% of inhaler-related carbon emissions.

## What are we doing about it?

- Options appraisal of potential interventions such as switching to lower volume MDIs.
- Guideline-focused prescribing: GINA 2023 guidance



**A Guide to being a green prescriber: Inhalers**



Evidence-based document for the respiratory multidisciplinary team

October 28th 2022



# HE Pop Quiz 3

**A typical surgical operation generates the same CO<sub>2</sub> emissions as what?**

A. Driving 700+ km in an average petrol car

B. Driving 500+ km in an average petrol car

C. Driving 400+ km in an average petrol car

# HF Carbon Hotspot: Operating Theatres

## Why are we prioritising it?

The operating theatre is a resource-intensive area of a hospital due to the use of:

- Anaesthetic gases
- Single-use products
- Energy associated with heating, ventilation, air-conditioning, lighting, and electrical equipment
- Water
- Pharmaceuticals
- Patient and staff travel
- Capital goods
- Hospital infrastructure

A typical single operation emits the same CO<sub>2</sub>e as driving 720km in an average petrol car.

## What are we doing about it?

- Green Theatres Compendium to be launched 8<sup>th</sup> February 2024 at RCPI.
- White Paper on reducing the environmental impact of surgical care published by the UK Health Alliance on Climate Change.



Intercollegiate  
Green Theatre  
Checklist

Compendium of Evidence

**Green Surgery**  
Reducing the environmental  
impact of surgical care



Brighton and Sussex  
medical school



UK Health Alliance  
on Climate Change

# HE Pop Quiz 4

In Galway University Hospital, a review and repair of Nitrous Oxide piping leaks led to what CO<sub>2</sub>e reduction?

A. 40% reduction

B. 80% reduction

C. 90% reduction

# HE Carbon Hotspot: Anaesthesia

## Why are we prioritising it?

- Inhalational anaesthetics, such as nitrous oxide, isoflurane, desflurane, and sevoflurane are greenhouse gases with global warming potentials 2-3 times higher than CO<sub>2</sub>.
- These medical gases account for 5% of the carbon footprint from Acute Hospitals.
- There is potential for rapid and significant reductions in emissions from inhaled anaesthetic agents, with a large proportion of N<sub>2</sub>O being lost before clinical use due to leaky central piping systems.

In University Hospital Galway, fixing N<sub>2</sub>O piping leaks led to an 80% reduction in CO<sub>2</sub>e.

## What are we doing about it?

- Action group formed to address nitrous oxide and Entinnox use and associated leaks.
- Educate local teams about options for managing anaesthetic gases effectively.

### Sustainability Strategy 2020

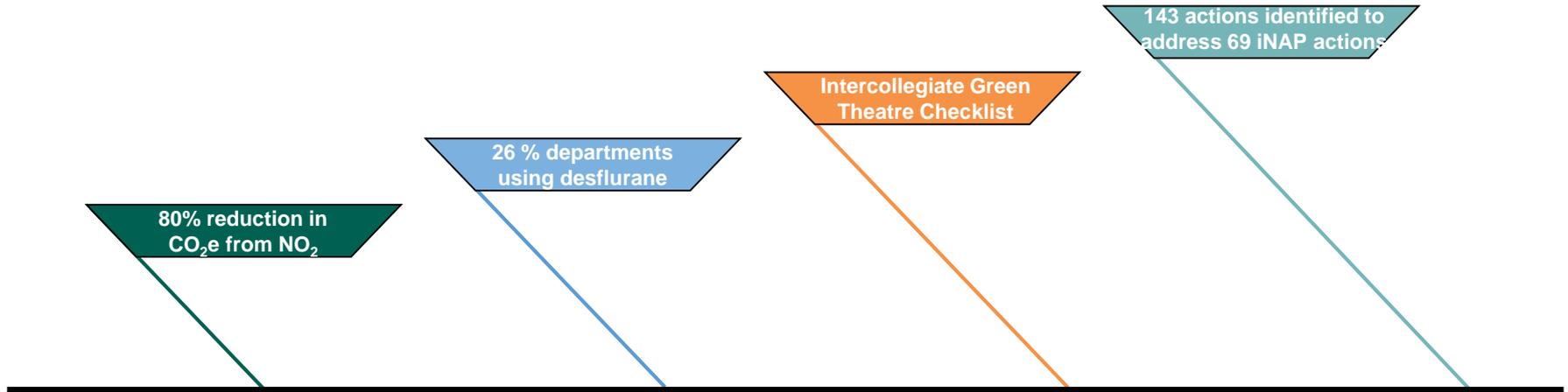


College of Anaesthesiologists of Ireland  
Sustainability Committee  
September 2020





# Achievements to-date



## Nitrous Oxide

In the National University of Ireland Galway, the review and repair of nitrous oxide (N<sub>2</sub>O) piping leaks has led to a c. 80% reduction in CO<sub>2</sub>e from N<sub>2</sub>O.

## Desflurane

At a national level, 20% of anaesthetic departments that used desflurane in 2019 have completely ceased its use.

## Green Theatres

Ready to launch implementation of Green Theatres Compendium at event on the 8<sup>th</sup> of February, 2024.

## AMR

121 of the actions identified have been initiated in 2022/23, with a further 22 planned in 2024/25

iNAP: Irish National Action Plan for AMR



# The Pivotal Role of Clinicians

4



# Defining the problem

- Healthcare systems are major emitters of greenhouse gases.
- Key sources of greenhouse gas emissions include energy generated from fossil fuels, running of services, and healthcare supply chains
- Reducing greenhouse gas emissions can be achieved through legislation and policy, effective leadership and management.
- **Above all promoting sustainable practice in frontline care**

## ACTIONS FOR SUSTAINABLE HEALTHCARE

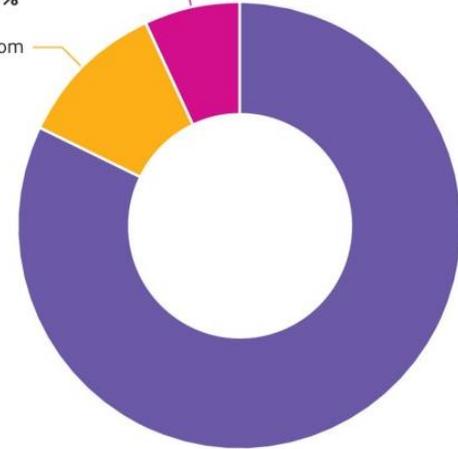
### Tackling climate change: the pivotal role of clinicians

Jeffrey Braithwaite,<sup>1</sup> Anuradha Pichumani,<sup>2</sup> Philip Crowley<sup>3</sup>



**Scope 1** Direct emissions from healthcare facilities **7%**

**Scope 2** Emissions from direct purchases of energy **11%**



**Scope 3** All other supply chain emissions **82%**

Including:

- Water and waste
- Energy
- Transport and construction
- Medical devices and medical supplies
- Pharmaceuticals and chemicals
- Other manufacturing
- Information and computer technology, equipment and services
- Plastics, rubber, textiles, and paper
- Finance, insurance, administration, and public health testing and research
- Food
- Others

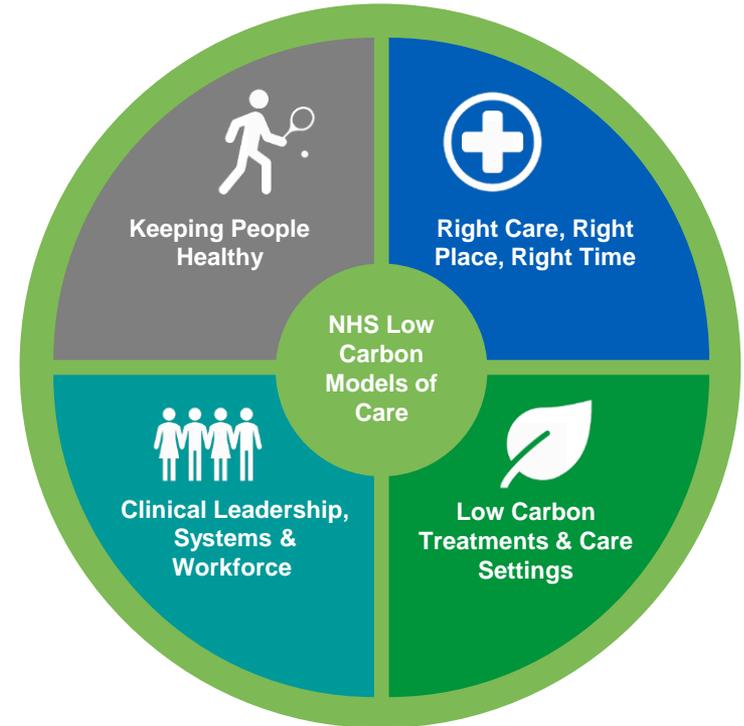


# Emerging Thinking

## 1. BMJ, Tackling climate change the pivotal role of clinicians

- Public health and advocacy
- Legislative change
- Influencing healthcare leaders and managers
- Promoting preventative healthcare
- Reducing low value care

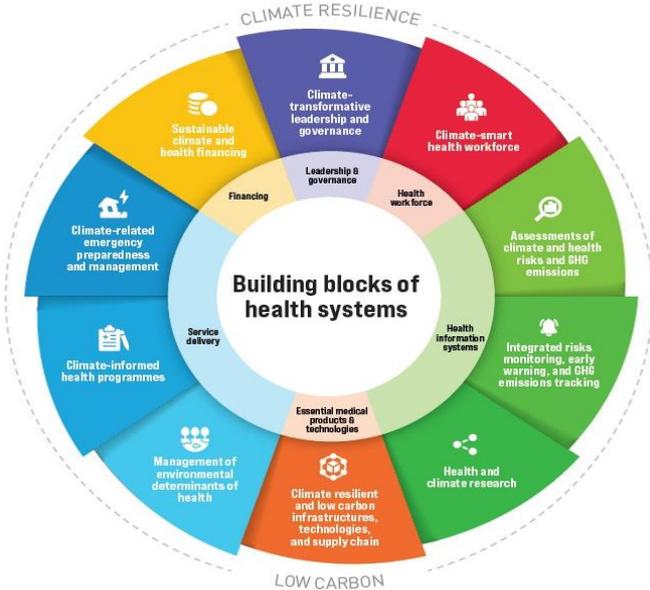
## 2. NHS, Principles of Low Carbon Models of Care





# Emerging Thinking

## 3. WHO Operational Framework for building climate resilient health systems

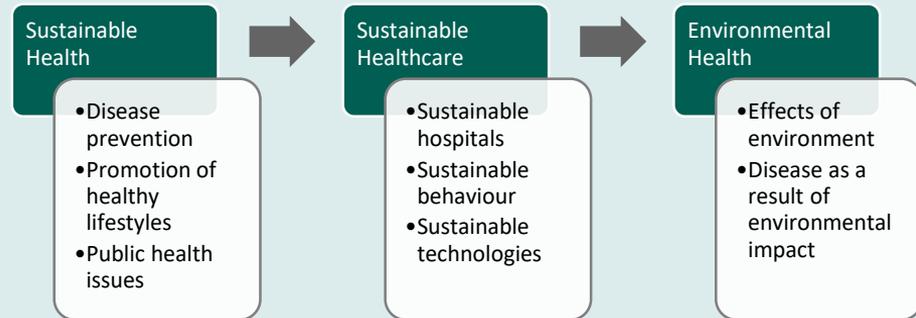


Themes:

- |                               |  |
|-------------------------------|--|
| 1. Leadership & governance    | 4. Essential medical products and technologies |
| 2. Health Workforce           | 5. Service delivery                            |
| 3. Health Information Systems | 6. Financing                                   |

## 4. The Nordics Model for Sustainable Healthcare

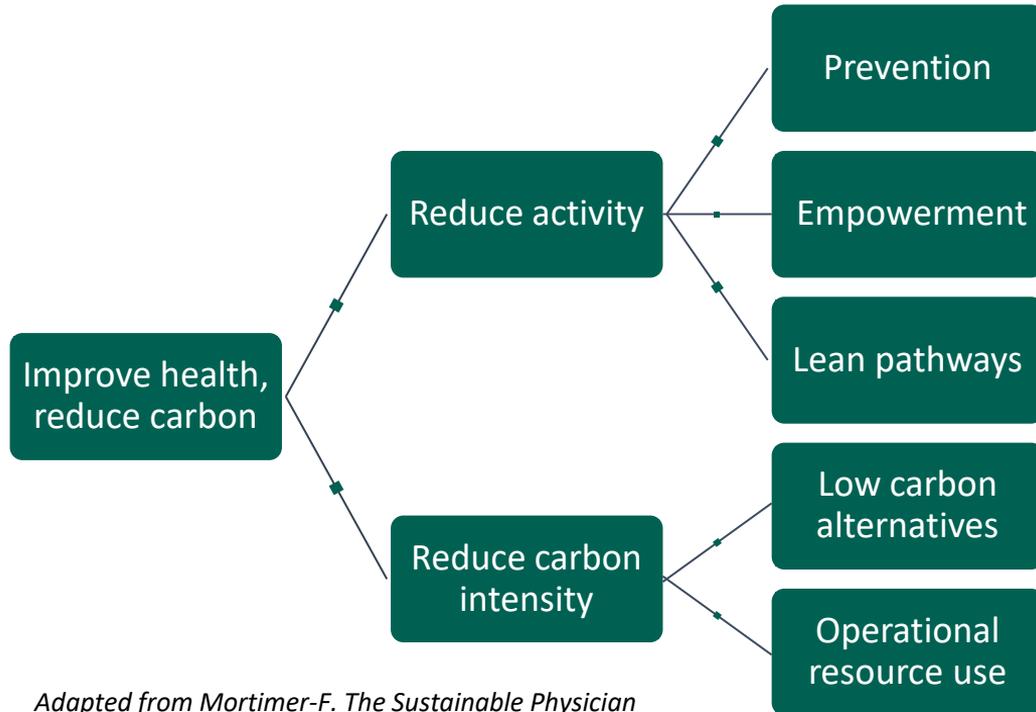
Sustainable Healthcare encompasses products, services and healthcare operations with superior environmental performance – without compromising the quality level of the care itself. When describing sustainability issues in relation to health and wellbeing, there are three different varieties which need to be taken into account.





# Emerging Thinking

## 5. Centre for Sustainable Healthcare



*Adapted from Mortimer-F. The Sustainable Physician Clinical Medicine 2010, Vol 10, No 2: 110–11*

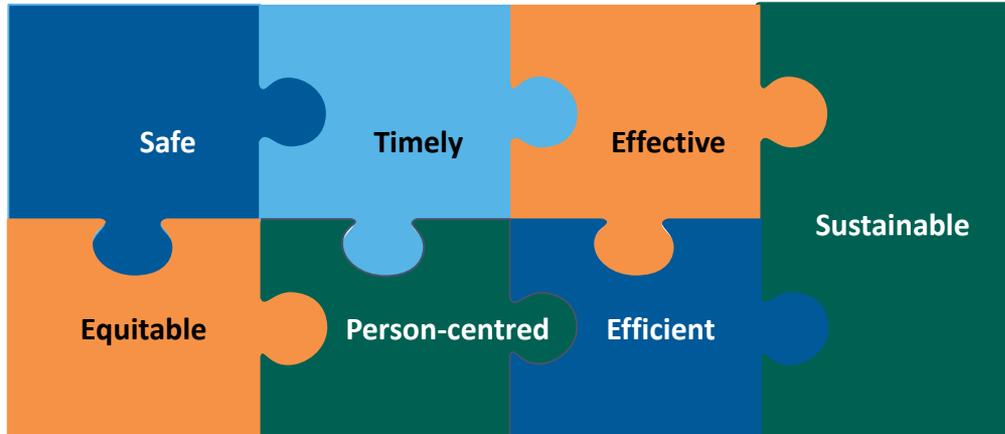
The diagram shows how the CSH **Principles of Sustainable Clinical Practice** were designed to help us reduce resource use while maintaining or improving health outcomes.

(= ↑ sustainable value)





# Emerging Thinking



Adapted from: Royal College of Physicians

**Sustainability:** Should be viewed as a characteristic of healthcare which must run through and moderate other domains. Healthcare should be considered not only in terms of what can be delivered to an individual today, but also the population in general and the patients of the future.

## Domains of Quality

- **Patient experience:** The patient should be the definitive focus of healthcare delivery.
- **Timeliness:** Key to avoiding waits and potentially harmful delays in the delivery of healthcare
- **Effectiveness:** Healthcare underpinned by the deployment of beneficial interventions at the right time and the right patient
- **Efficiency:** Make best use of limited resources. Avoidance of waste should apply.
- **Safety:** While risk cannot be reduced to zero, it must be actively managed to minimise harm
- **Equity:** Healthcare must strive for a level playing field, in which patients determine their own high quality care.



# Call to Action

*What can you do?*

*How can you support efforts to achieve net-zero emissions no later than 2050*

*And delivering healthcare which is environmentally and socially sustainable*





# Wrap Up

## Key Messages:

We need your leadership, support and commitment to drive sustainable change effectively across the system.

1. Engage with the programme – Support the development of the Strategic Framework for Greener Models of Care
2. Look for opportunities to embed more sustainable practices across the system in your day-to-day work. Identify one sustainable change that you will make.
3. Spread the word about the sustainability challenge to your colleagues.
4. Send any examples of green initiatives underway across the system to [louise.byrne9@hse.ie](mailto:louise.byrne9@hse.ie)

## Next Steps:

1. Current-state Assessment: Progress development of Green Initiatives Repository
2. Ongoing implementation of Early Mobilisation Initiatives
3. Development of the Strategic Framework for Greener Models of Care.
4. Engagement with clinical programmes in relation to Strategic Framework for Greener Models of Care