Institute for Healthcare Improvement

E3 - Applying improvement science to the topic of sustainability

Sian Hodgkinson East London NHS Foundation Trust, England

Sarah McAllister East London NHS Foundation Trust, England

Elaine Mead, Improvement Care and Compassion, Scotland

Nana Twum-Danso, Institute for Healthcare Improvement, USA

12 April 2024
International Forum on Quality & Safety in Health Care | London
Session E3

Disclosures

The speakers have no conflicts of interest to declare

Speaker Introductions

Sian Hodgkinson
People Participation Lead for Environmental Sustainability, East London NHS Foundation Trust

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Head of Improvement Programmes, East London NHS Foundation Trust

Elaine Mead
Improvement Care and Compassion

Nana Twum-Danso
Senior Vice President, Institute for Healthcare Improvement

Session Objectives

As a result of this session, participants will be able to:

1. Apply practical strategies to reduce their organisational carbon footprint
2. Understand how to develop an environmental sustainability measurement plan
3. Address practical challenges that arise from undertaking sustainability work
4. Apply a QI lens to solve environmental sustainability problems

Let’s get to know each other and why we chose this session

Form a pair with your neighbour and introduce yourselves to each other

Share the single word comes top of mind for you when you think of sustainability in health care

Understanding the importance of including environmental sustainability elements within quality improvement initiatives

Elaine Mead
Improvement, Care and Compassion
IHI/BMJ Patient Safety and Quality, London April 2024

Elaine Mead

Improvement Care and Compassion

Executive Director

Declaration of Interest:

IHI Leadership Faculty
Catalysis European Lead Faculty
AQUA Associate

Board member Alliance for Water Stewardship
Associate, Centre for Healthcare Sustainability
Chair Greener Care IHSCM

Healthcare organisations have social, economic and environmental responsibilities

1830-1900

Context of healthcare

- The current models of healthcare developed in the Western world are now regularly described as **unsustainable** (OECD, Organisation for Economic and Development, 2015).

Ageing population, rising costs from new technologies, procedures and drugs and increasing expectations of patients and their families

- Evidence of wasteful practices and designs within the sector, exceed 20% of total health care expenditures in the US (Hackbath and Berwick, 2012).

Current focus within healthcare

Delivery and access

Affordability and efficiency

climate

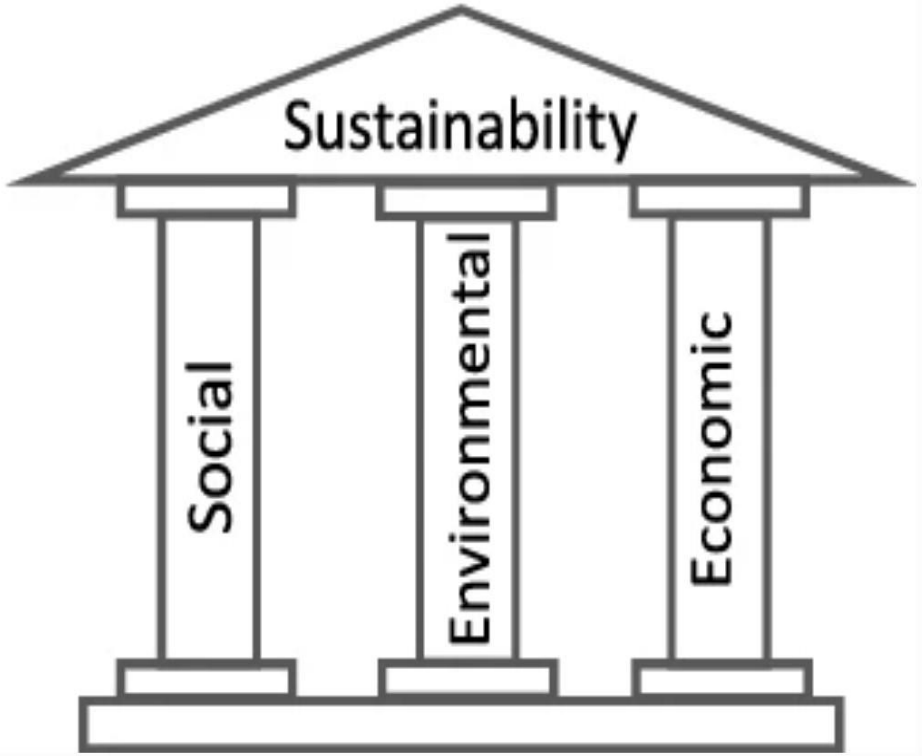
pollution

biodiversity

“Sustainability means more than merely lasting or surviving; it means designing and delivering health care that uses resources in ways that don’t prejudice future health and wellbeing.”

David Pencheon,
Director,
NHS Sustainable Development Unit
(Pencheon 2011)

Model of Sustainability



Purvis 2018

UCD School of Nursing, Midwifery and Health Systems

A realist inquiry into the contexts and mechanisms that enable the inclusion of measures of environmental sustainability outcomes in the design of healthcare improvement interventions to deliver high-quality care

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Key PhD research questions:

- Could current improvement methods be further adapted in healthcare to include wider elements of sustainability including environmental protection?

- What are the barriers and enablers for including sustainability as a key domain of quality in continuous improvement work?

- Who should take responsibility for key elements of the wider population, social, economic, and environmental impact of the design, provision, and delivery of healthcare improvement interventions?

Classification: Official

NHS England

Delivering a 'Net Zero' National Health Service

Scottish Government
Riaghaltas na h-Alba
gov.scot

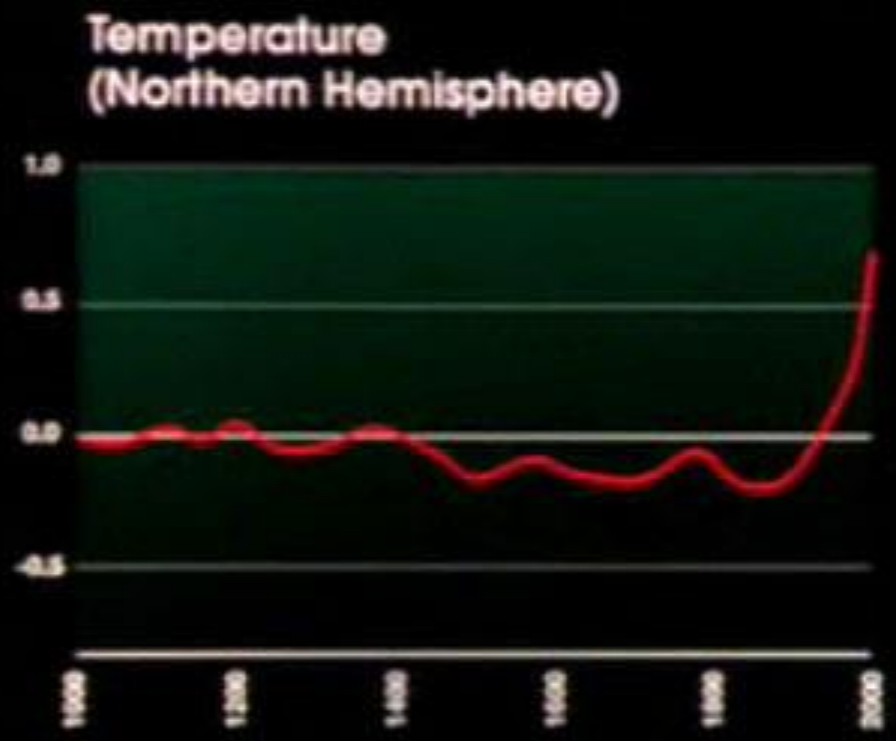
NHS Scotland

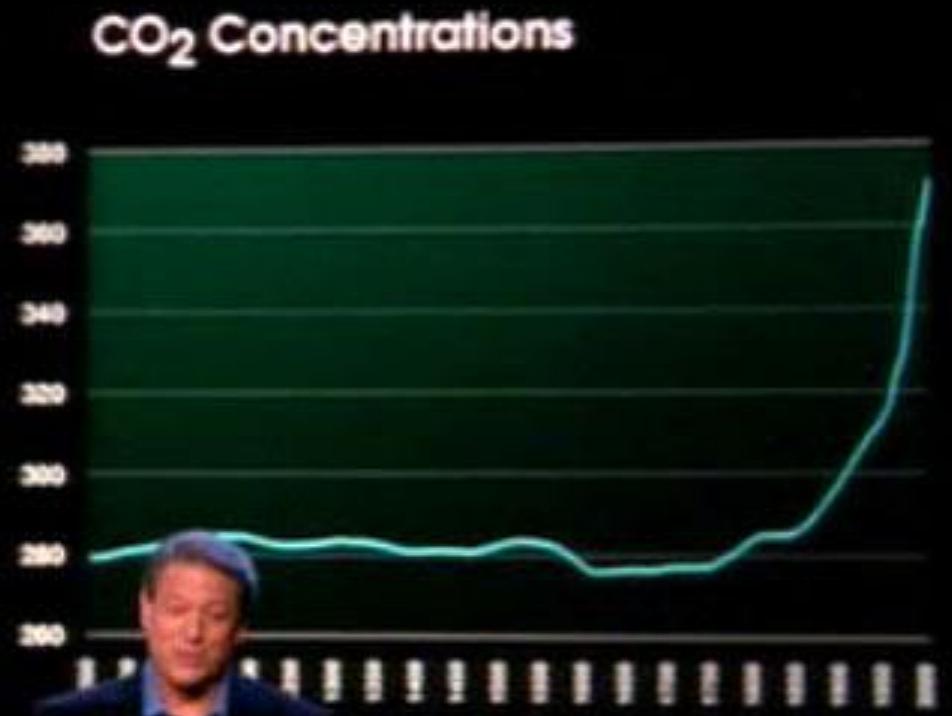
Climate Emergency & Sustainability Strategy

2022-2026

NHS SCOTLAND

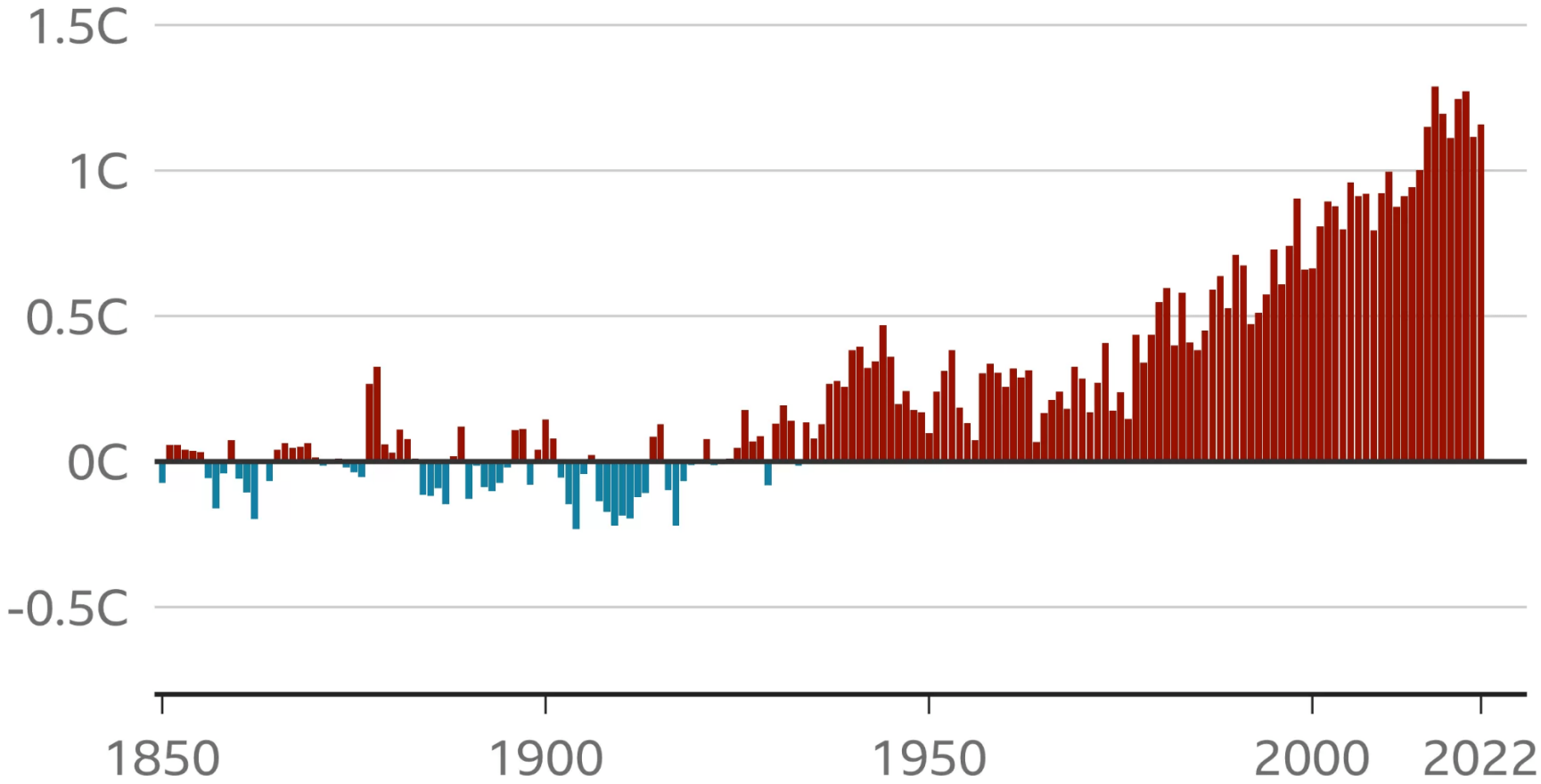
1000 Years of CO_2 and Global Warming





The world has been getting warmer

Change in annual average global temperature from pre-industrial levels (1850-1900) in degrees C



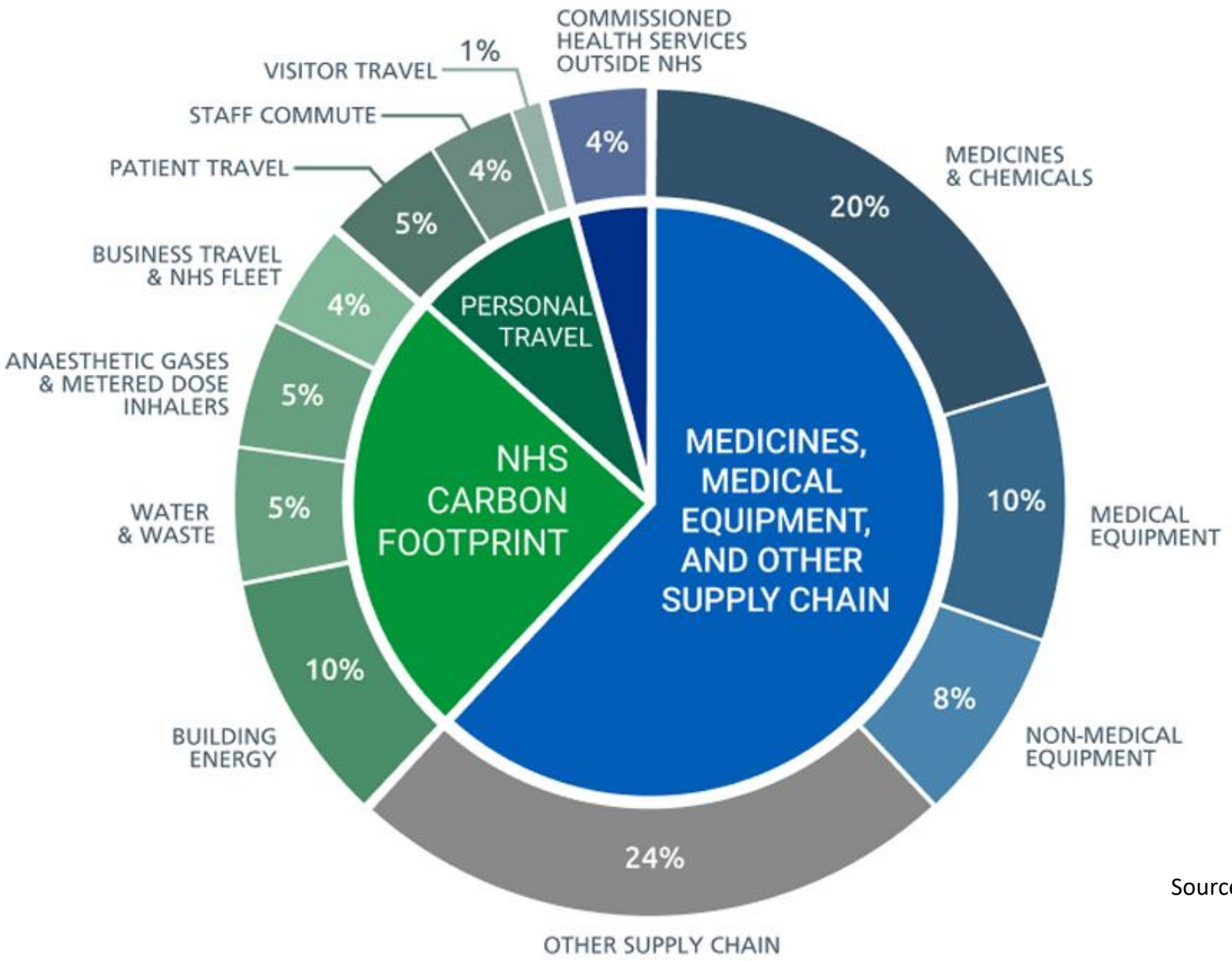
Note: Average calculated from HadCRUT5, NOAAGlobalTemp, GISTEMP, ERA5, JRA-55 and Berkeley Earth climate datasets

Source: Met Office

BBC

Carbon dioxide emissions attributable to the NHS in England are greater than the annual emissions from all aircraft departing from Heathrow Airport.
NHS
Heathrow

Kings Fund



Sources of carbon emissions by proportion of NHS Carbon Footprint Plus Delivering Net Zero NHS Plan Green

Up to 90% of orally administered pharmaceuticals are excreted into wastewater as active substances in the faeces and urine of patients

https://noharm-europe.org/documents/pharmaceutical-residues-hospital-wastewater

A vicious cycle: links between the environment, health & healthcare

Education

Income

Employment

Housing

Social determinants

Influences

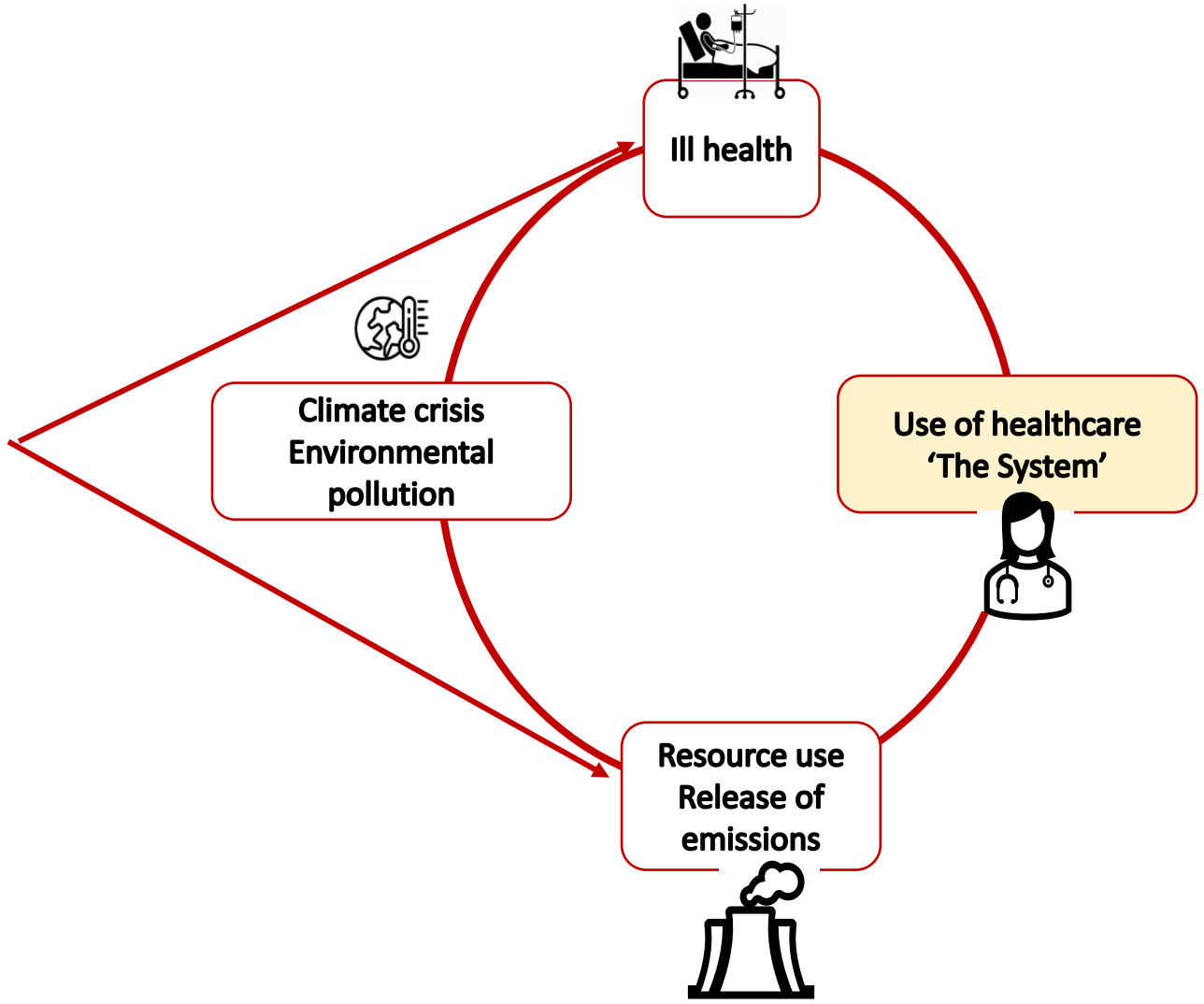
Commercial determinants

Tobacco

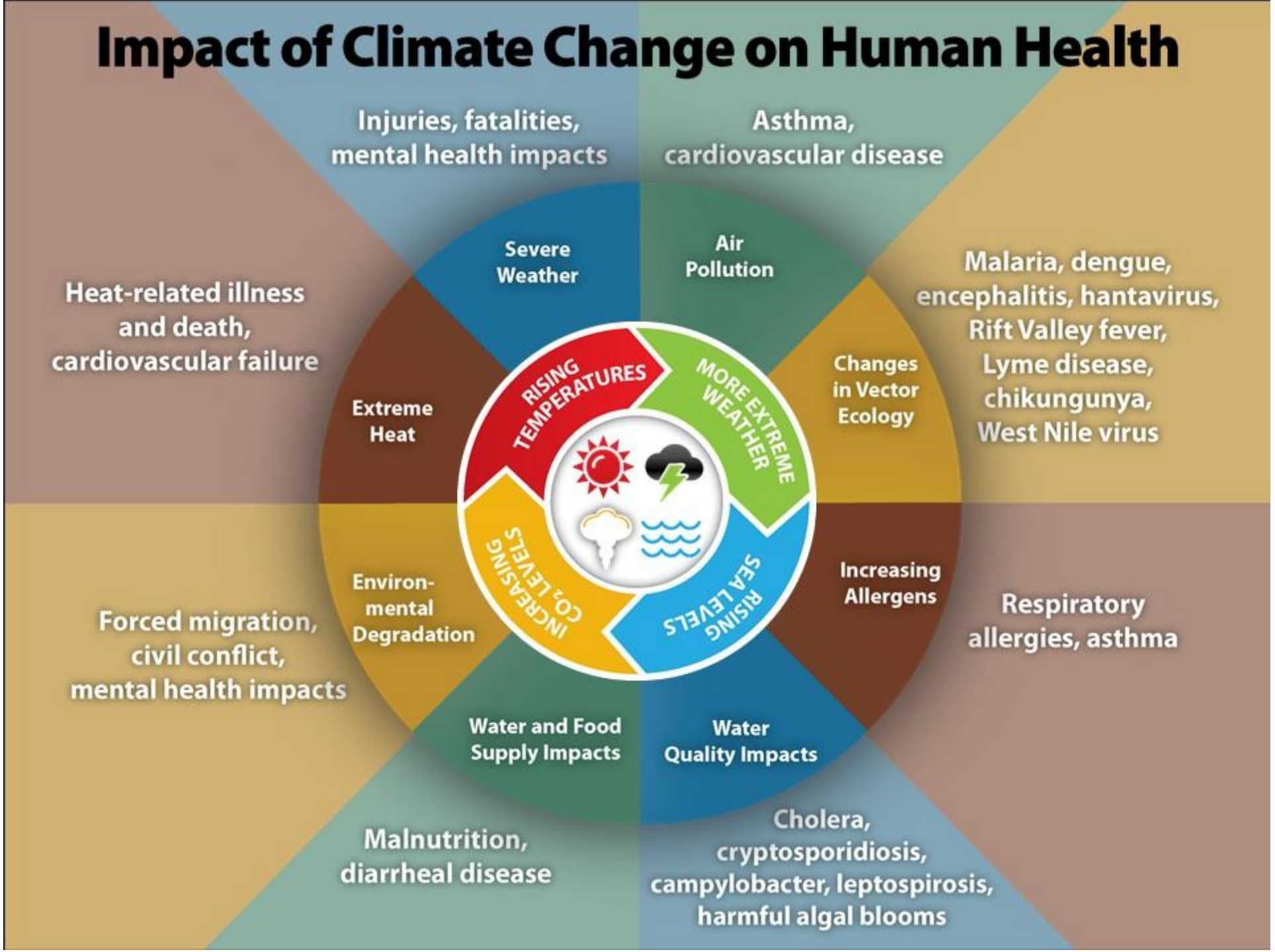
Car dependence

Meat & Dairy

Plastics



Acknowledgement and adapted from: Green@Barts Health



Credit: Centre of Disease and Control Prevention

BIOHAZARD

Why this research now?

Health care causes global environmental impacts that, depending on which indicator is considered, range between 1% and 5% of total global impacts, and are more than 5% for some national impacts.

(Lenzen *et al.*, 2020)

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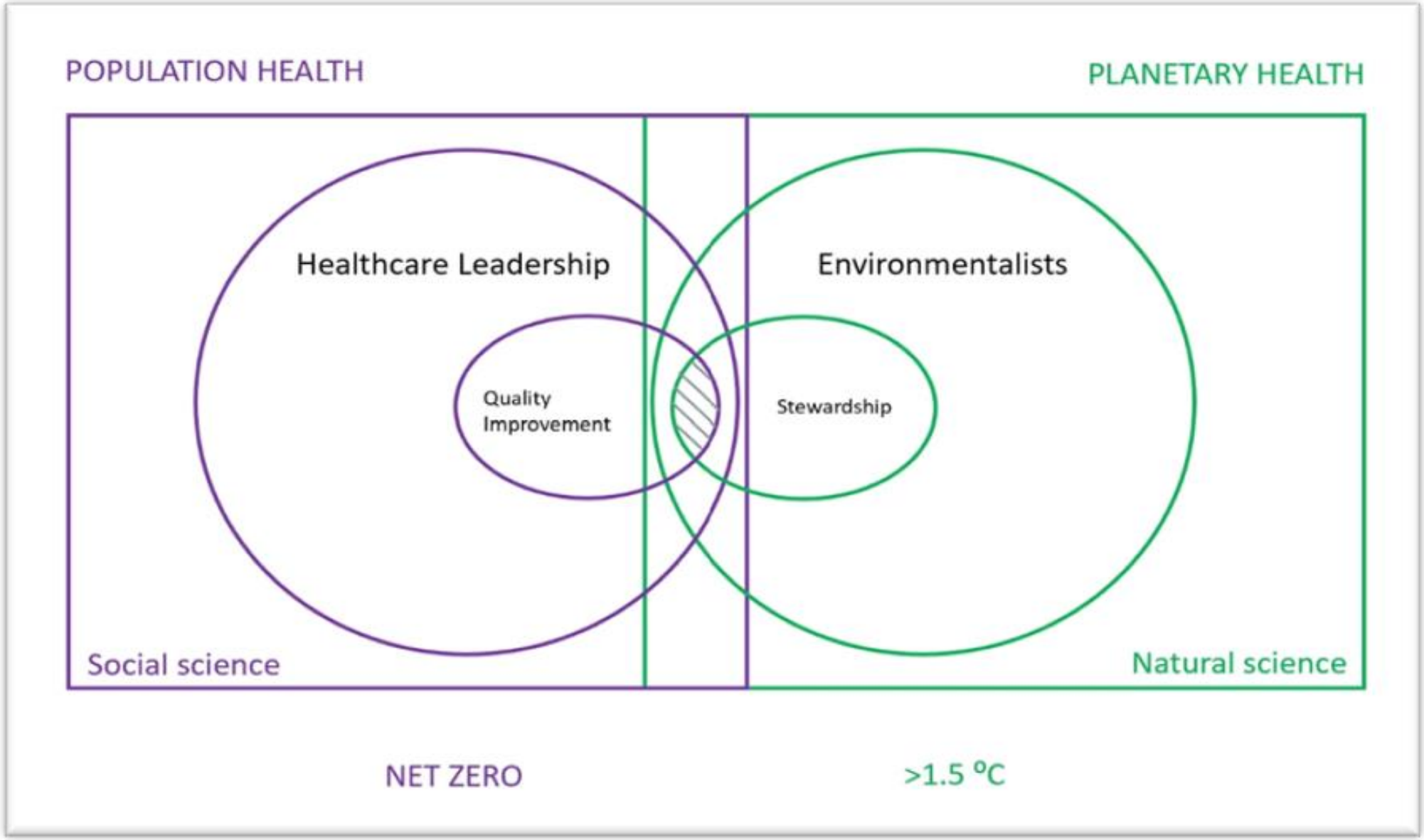
Using QI to identify waste in healthcare processes

Identifying waste in healthcare processes

Waste: one issue - two perspectives



Method: Single question micro-survey:

"In just a few words or sentences can you share your understanding of the phrase "**sustainable health and care**"

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Micro-survey Results

- 32 respondents from 40 invitations (80% response rate)
- Of the 32 responses, 23 (72%) did mention the environment
- 9 (28%) made no mention of the environment, but did give a sense of the pressures on the health and care system
- Three respondents mentioned the word WASTE in their response
- Five respondents referred to the fact that the environment should have been mentioned or considered in their current practice

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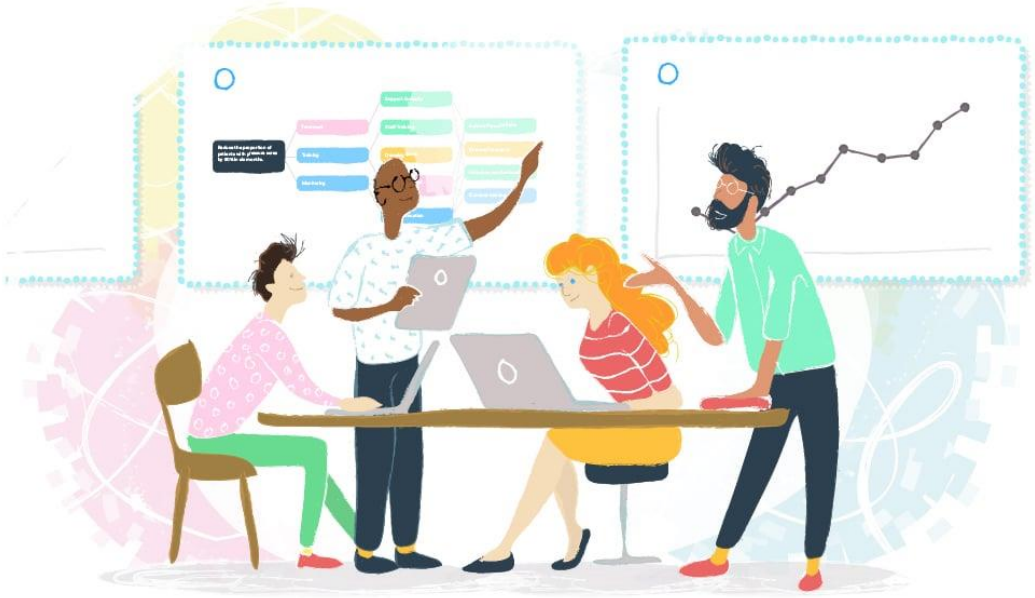
"Historically health services haven't considered their environmental or ecological impact but taking a sustainable approach means ensuring this is considered and that all necessary mitigations are put in place to minimise impacts"

Engagement of clinical energy

- Trusted ambassadors of health
- Influential in initiating change
- Driven to make a difference
- Experts in Plan Do Study Act
- Politically influential
- Trained to act on evidence
- Leaders of teams
- Innovative and creative
- Competitive



+

GREEN TEAM

=

SUSTAINABLE IMPROVEMENT

NHS IMPACT

Improving Patient Care Together

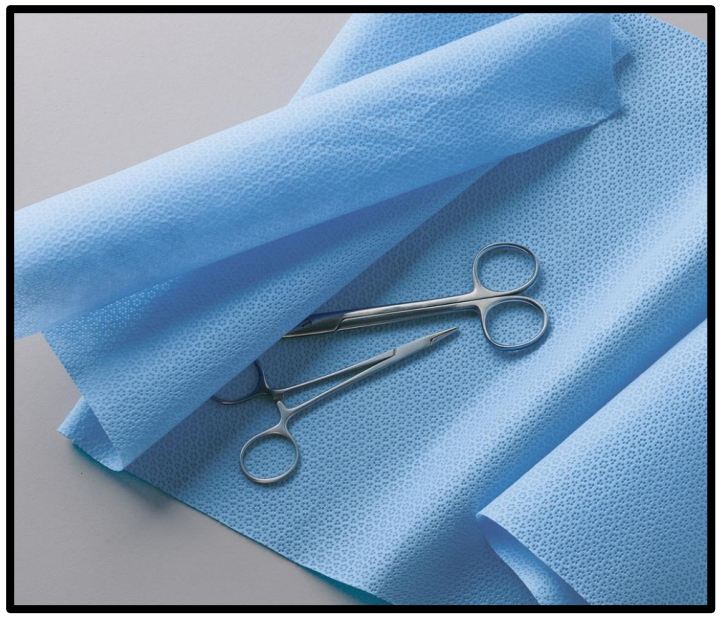
NHS

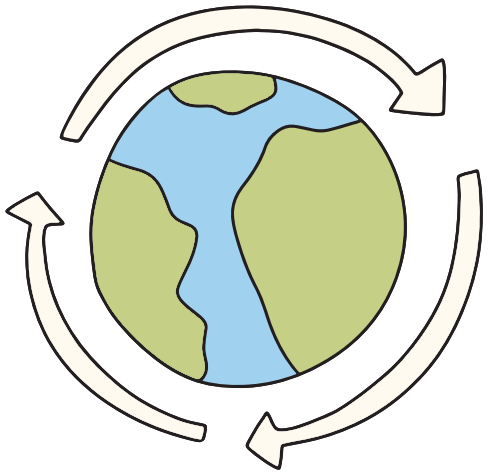
Environmental sustainability – sustainable development

Quality statement

We understand any negative impact of our activities on the environment and we strive to make a positive contribution in reducing it and support people to do the same.

Healthcare Consumables



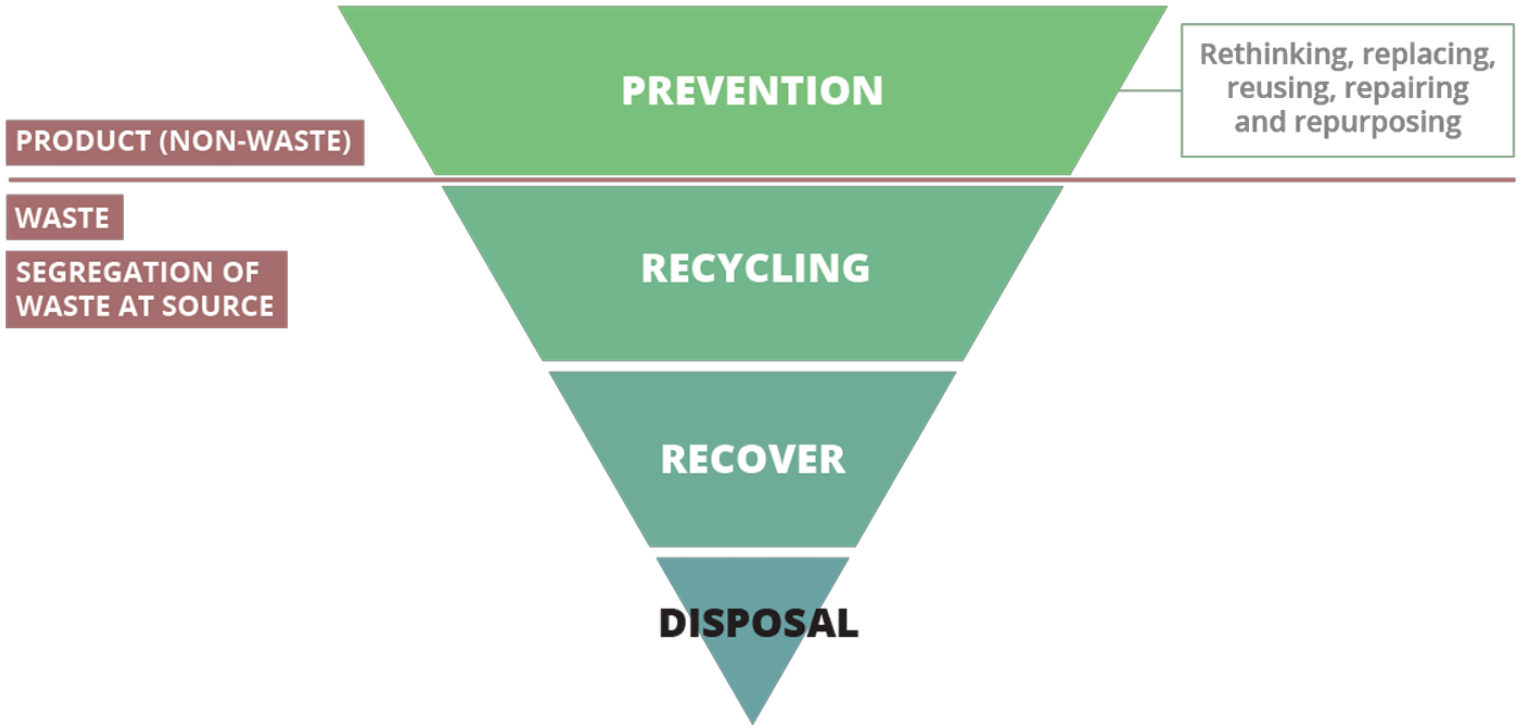


Reduce? **Reuse?**

Where does it come from?
Where does it go?

Circular healthcare

The circular economy is based on three principles, driven by design: eliminate waste and pollution, keep products and materials in use, and regenerate natural systems



Green Healthcare System

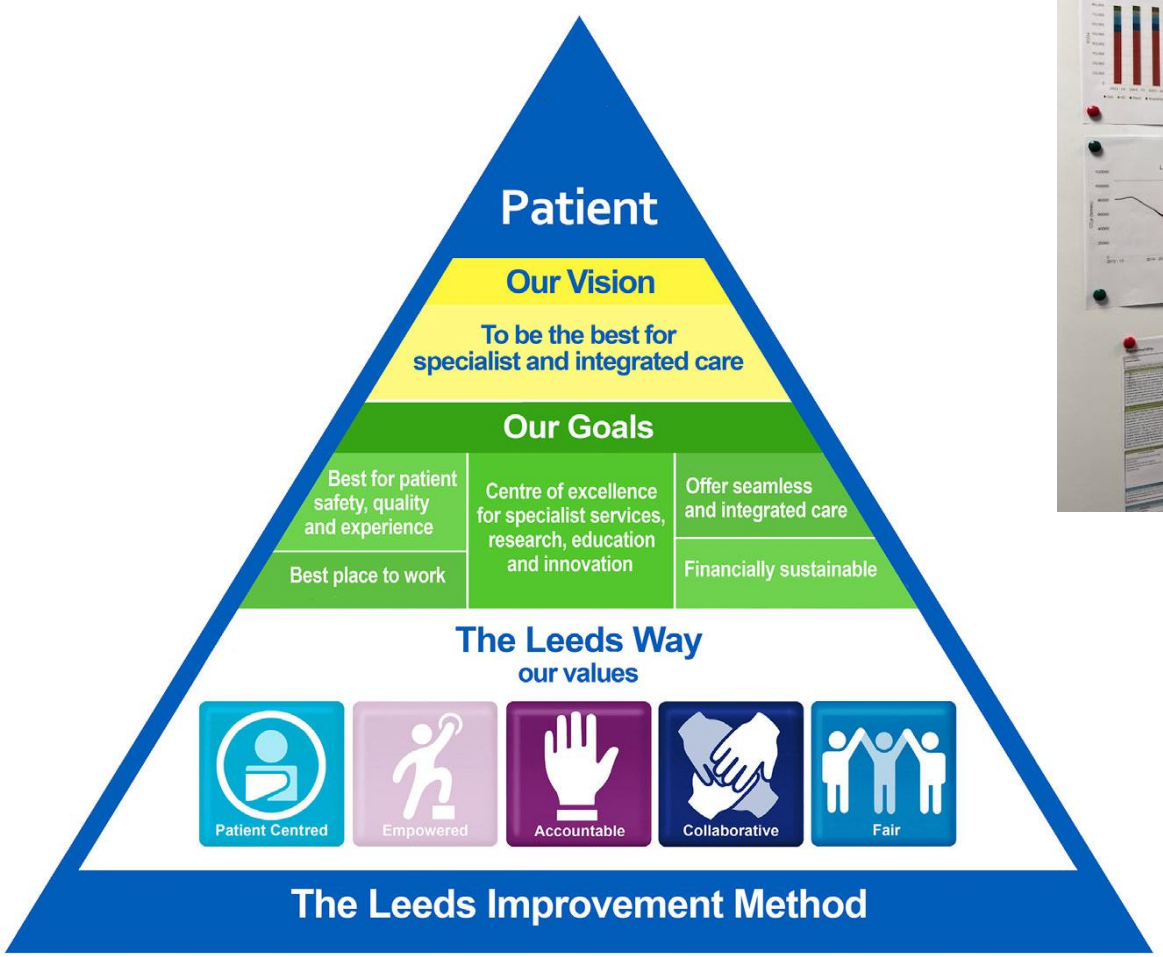
Jazla Fadda 2019

- Leadership
- Substitute harmful chemicals with alternatives
- Reduce, treat, and safely dispose of healthcare wastes
- Implement energy efficiency and clean, renewable energy generation
- Reduce hospital water consumption and supply potable water
- Improve transportation strategies for patients and staff
- Food
- Pharmaceutical Pollution and Safer Pharma
- Green Building
- Purchasing

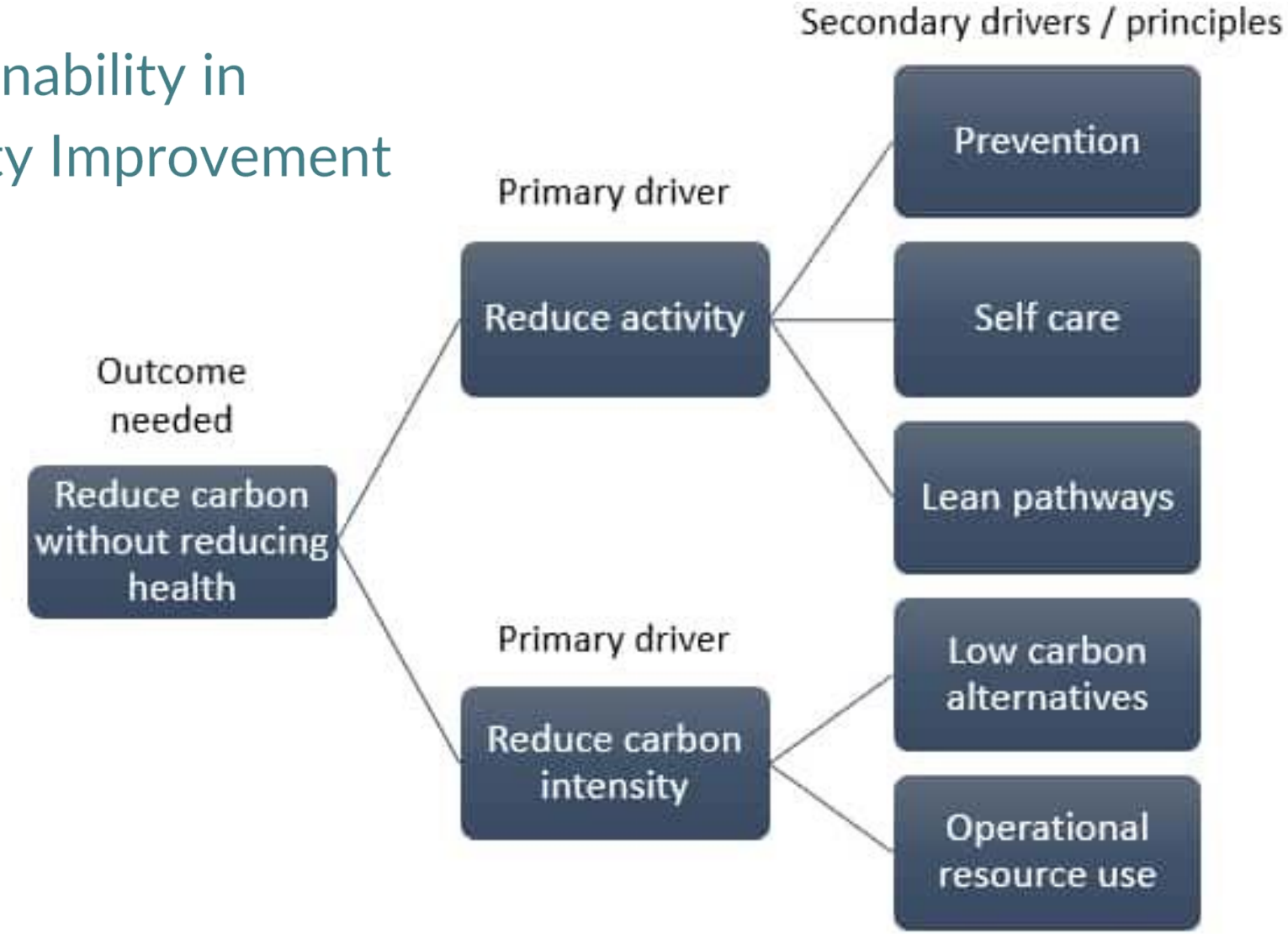
“Our vision is to become one of the greenest NHS Trusts in the NHS”

NHS
The Leeds Teaching Hospitals
NHS Trust

NHS
The Leeds Teaching Hospitals
NHS Trust



Sustainability in Quality Improvement



Credit: Centre for Sustainable Healthcare

Sustainability in Quality Improvement

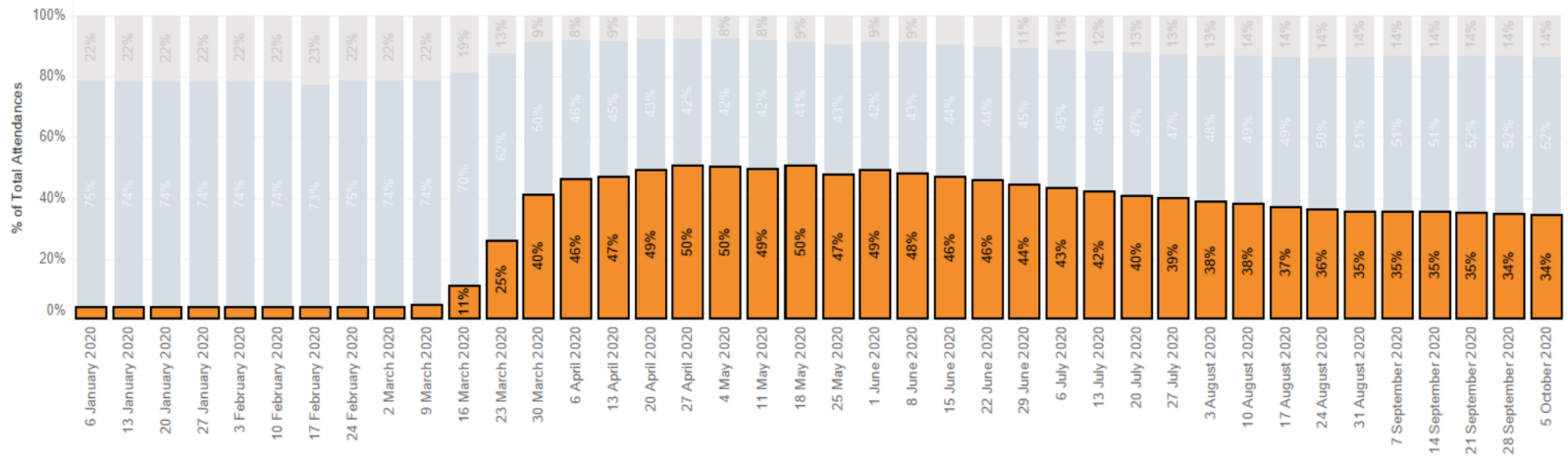
“In order for the NHS to reduce its greenhouse gas emissions to net zero by 2050, carbon needs to become an additional **currency** alongside money, understood by all working in the health system.”

Home | Sustainable Quality Improvement (susqi.org)

Rapidly rolled out remote consultations

100% of trusts in England now have access to a video consultation platform with +13,000 video consultations taking place every working day.

Remote consultations performed from January to September 2020



8.4 million adults avoided the need to travel.
Total time saving of over 6.6 Million hours.

18,500 tonnes of CO2 emissions from patient travel.
Carbon capture of over 24,000 acres of forests per year.

Avoided patient journeys totaling over 136,000,000 miles.
Flying around the world 5,500 times.

Claire Roberts, Joint Clinical Lead
Charis Stacey, Pathway Redesign Lead

What if EVERY improvement initiative considered the environmental impact?

Financ. / ICT
PML

Clinical Support Services
H.C.S.&T
Imaging

09.45 am
Standard Work
Work in Progress
Celebrations

IMPROVEMENT HUDDLE BOARD

Relevance, value and impact of this research

To understand why healthcare professionals using quality improvement methods to improve services do not routinely include measurement of environmental consequences of the delivery of care

Relevance, value and impact of this research

To support already busy staff in this work is crucial, with any addition to the current improvement methods framed as an extension rather than additional work

The research will explore if the benefit impact on climate change will be motivating to staff involved in improvement initatives

Summary

As a researcher and an improvement practitioner, I have both the privilege and responsibility of progressing improvement science to make clear the causal links between the design and delivery of healthcare and future planetary health.

Please join me on this adventure.

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ACT NOW

“ You must unite behind the science. You must take action. You must do the impossible. Because giving up can never be an option.”

Greta Thunberg

US Congress. Washington DC. 17 September 2019

Ralf Lotys (Sicherlich), CC BY 4.0 <https://creativecommons.org/licenses/by/4.0>, via Wikimedia Commons

How quality improvement can help deliver a net zero national health service

Sarah McAllister
(Head of Improvement Programmes)

Siân Hodgkinson
(People Participation Lead for Environmental Sustainability)

With thanks to Adam Toll, Francisco Frasquilho, Juliette Brown, Paul Lomax & our clinical teams

NHS
East London
NHS Foundation Trust

Background

East London NHS Foundation Trust

The global problem	5.2% of global emissions
The NHS in England	4% of England’s emissions
ELFT’s climate action	Commitment to use QI

Aim of the programme

East London NHS Foundation Trust

Reduce direct greenhouse gas emissions by 40% by 2025 and indirect emissions by 40% by 2036

Our methodology

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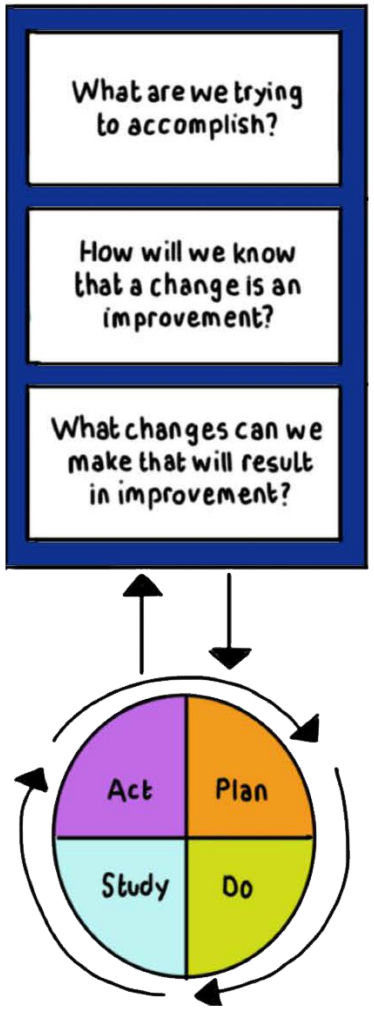
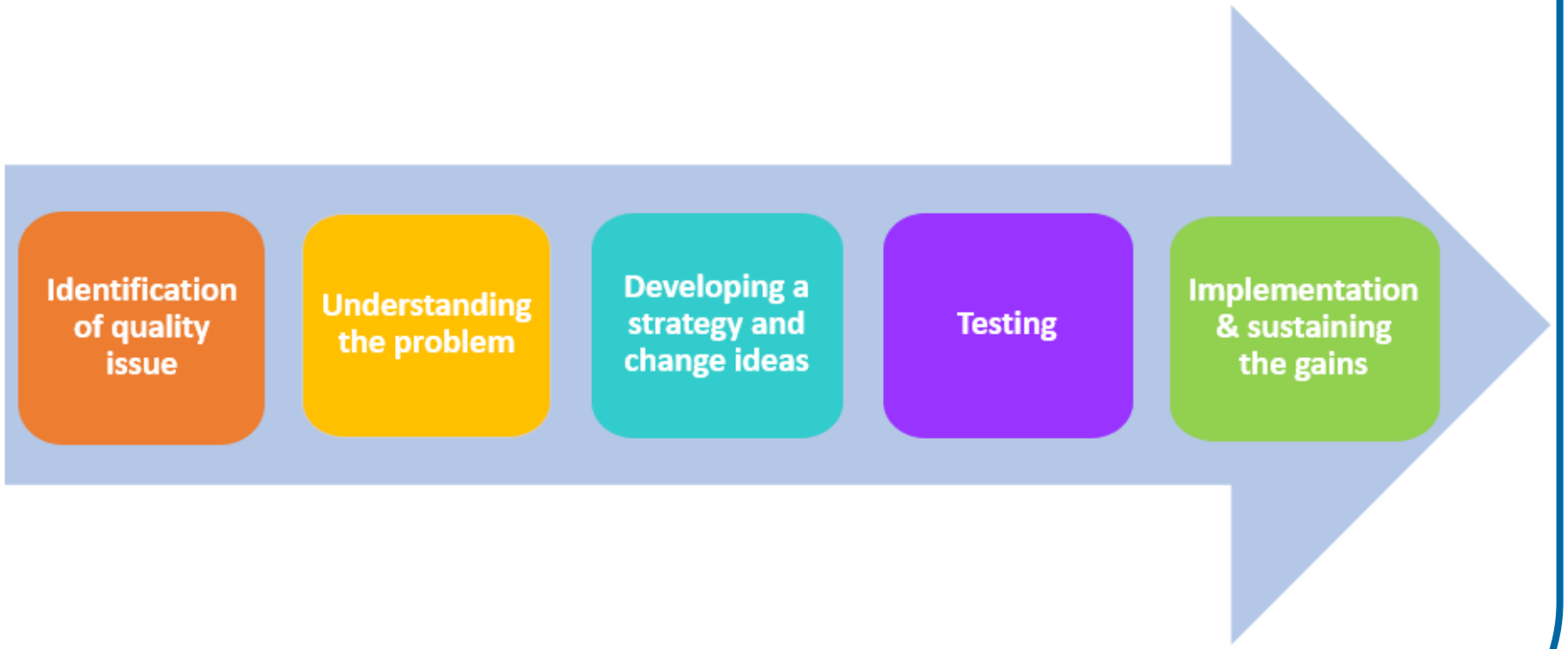
Model for Improvement

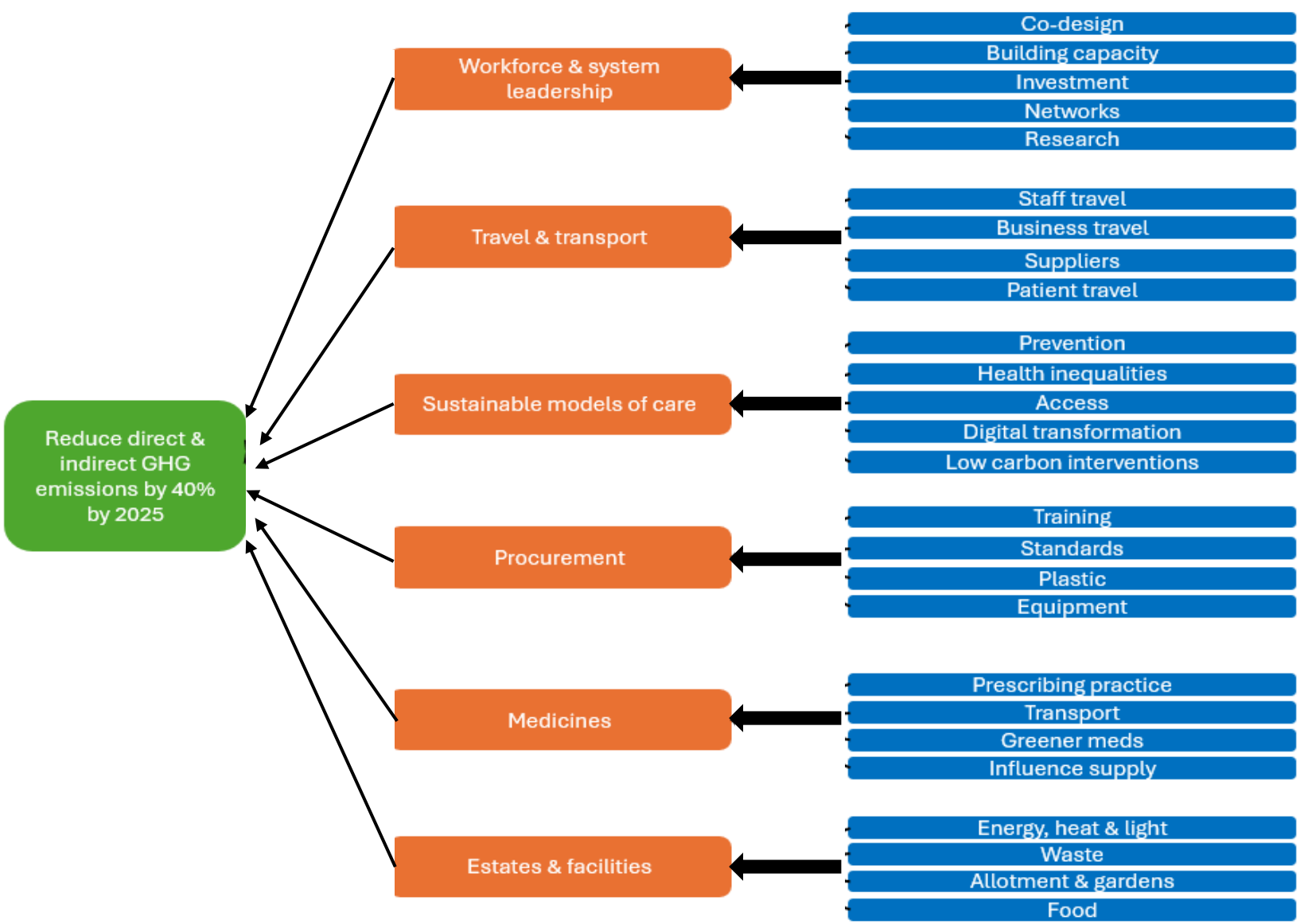


ELFT Sequence of Improvement



A systems level approach to addressing sustainability

NHS East London NHS Foundation Trust



- Board lead & People Participation lead for environmental sustainability
- Sustainability message in Trust comms with opportunities for action

- Installed cycling infrastructure across sites
- Cycle to work scheme

- Increased remote consultation where appropriate

- Adopted Social Value Model –10% minimum scoring criteria in all procurements to assess contribution to NHS' net zero targets

- Paper bags to supply TTAs
- Cargo bikes deliver small quantities of meds

- 100% renewable energy
- Estates optimisation for heating
- Insulation, windows & heating set points

Systems level measurement plan

NHS East London NHS Foundation Trust

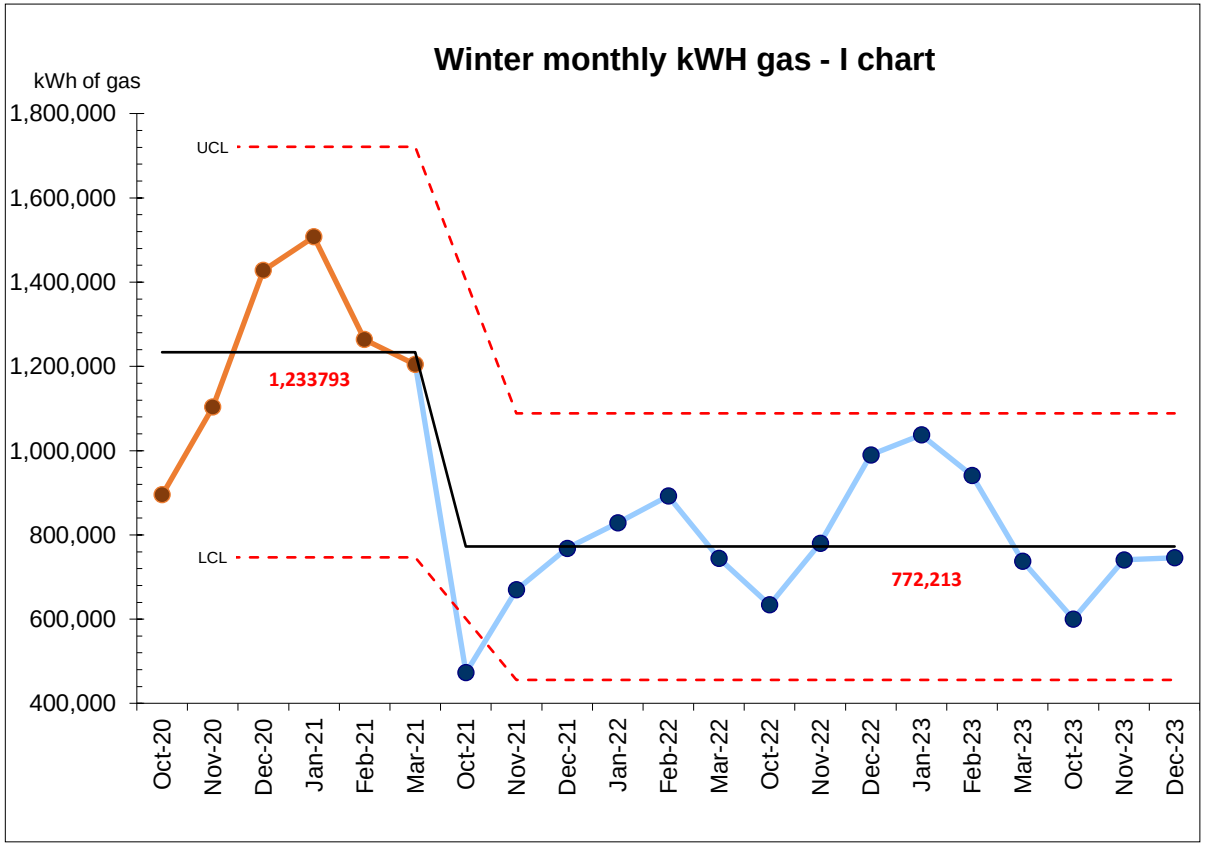
Measure	Operational definition
Consumption (kWh)	Amount of energy used per month for specified utility (gas, electric, water)
CO_2 tonnes	Tonnes of CO_2 created from using utility per month (gas and electric, water does not produce any CO_2)
Mileage	Total miles claimed per month, divided by total days claimed for in that month, dependant on which month the claim was made

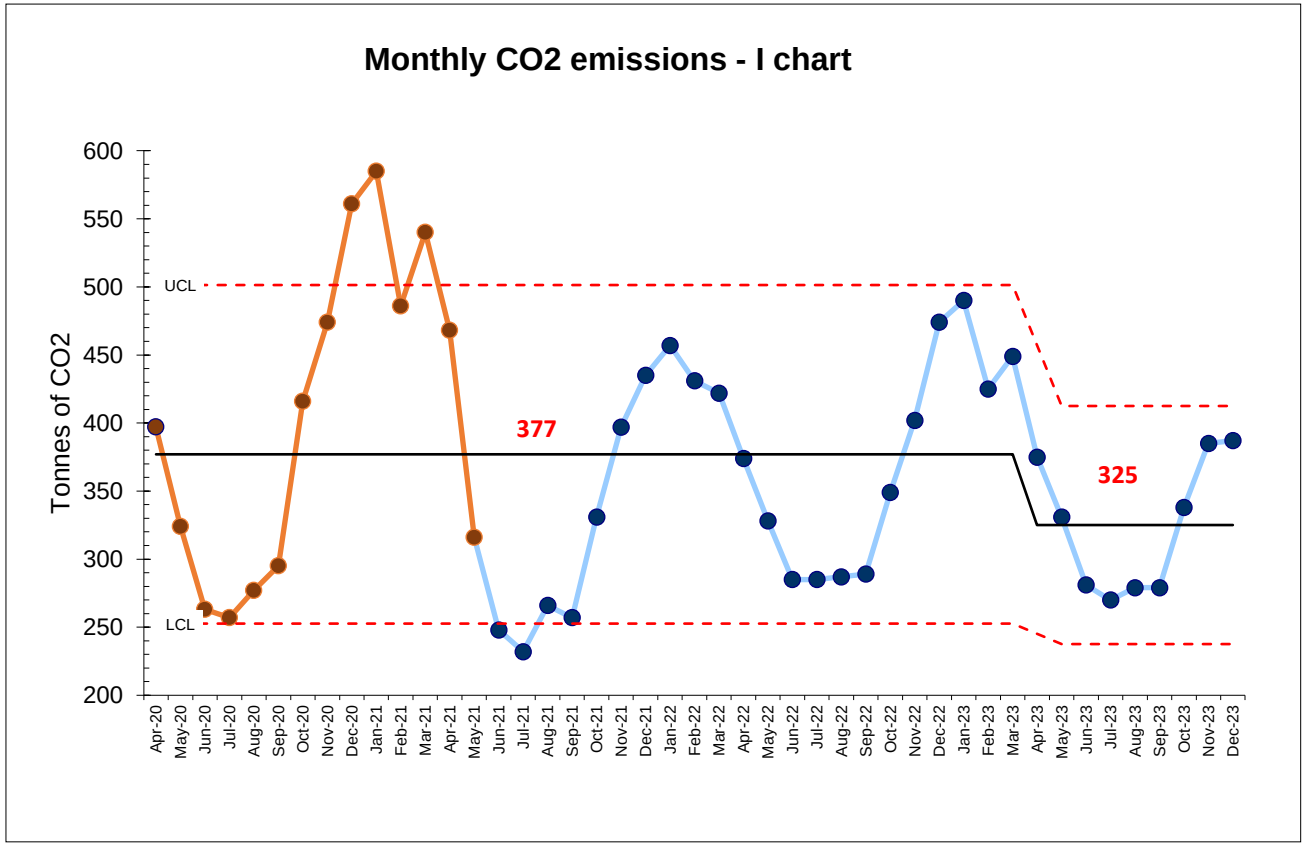
Systems level measures – results so far

NHS East London NHS Foundation Trust

37%

14%





Service user involvement

NHS East London NHS Foundation Trust

Co-Production

Developing, designing and delivering services together in *equal* partnership.

Service user involvement

NHS
East London
NHS Foundation Trust

Service Improvement

- Four times more likely to reach aims with SU involvement.

Kostal & Shah (2021).

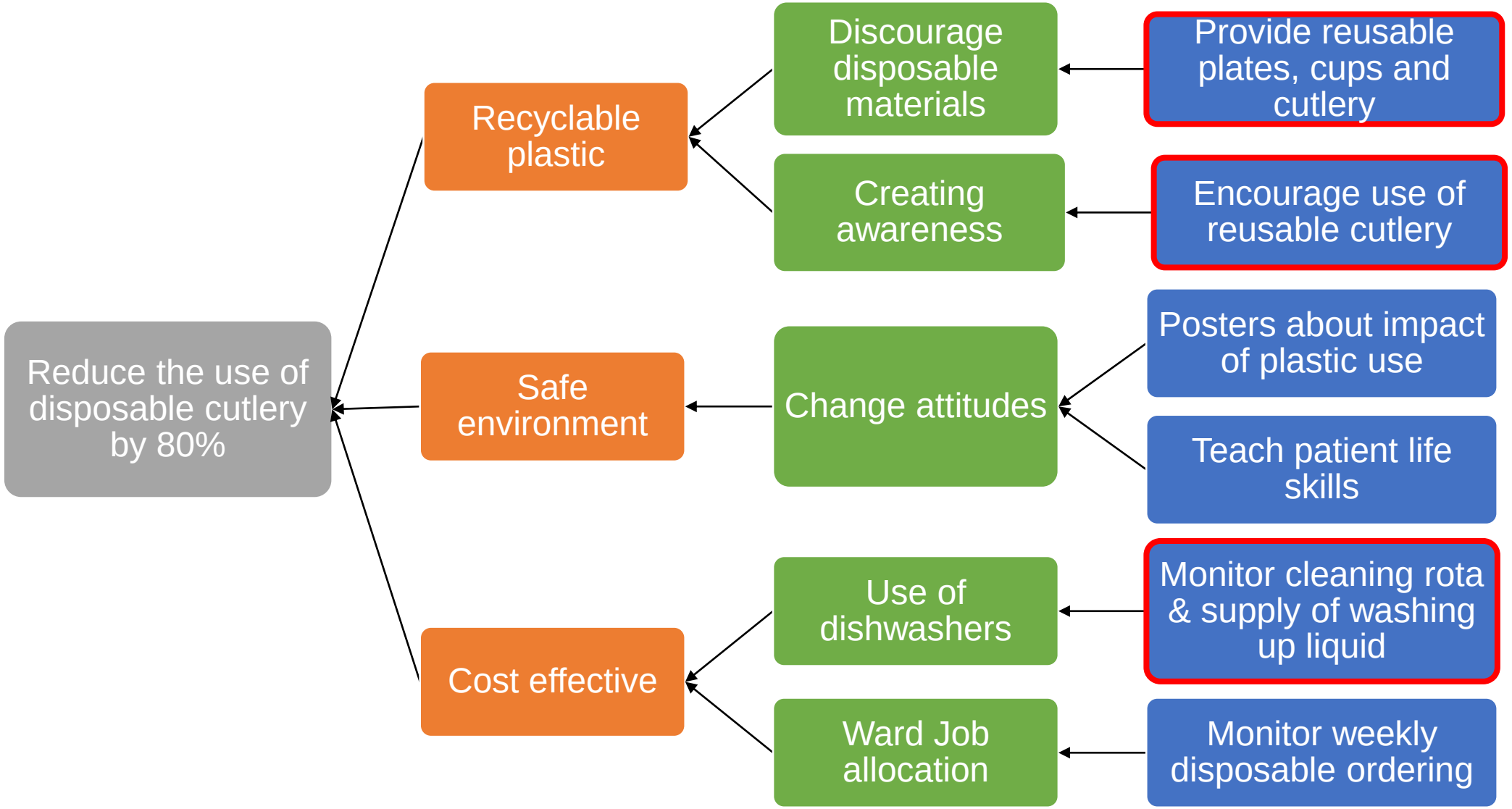
Service User Empowerment

- Learning/ refreshing skills.
- Improve self-confidence.

Curwen, *et al.* (2019).

Case study 1 – reducing single use cutlery

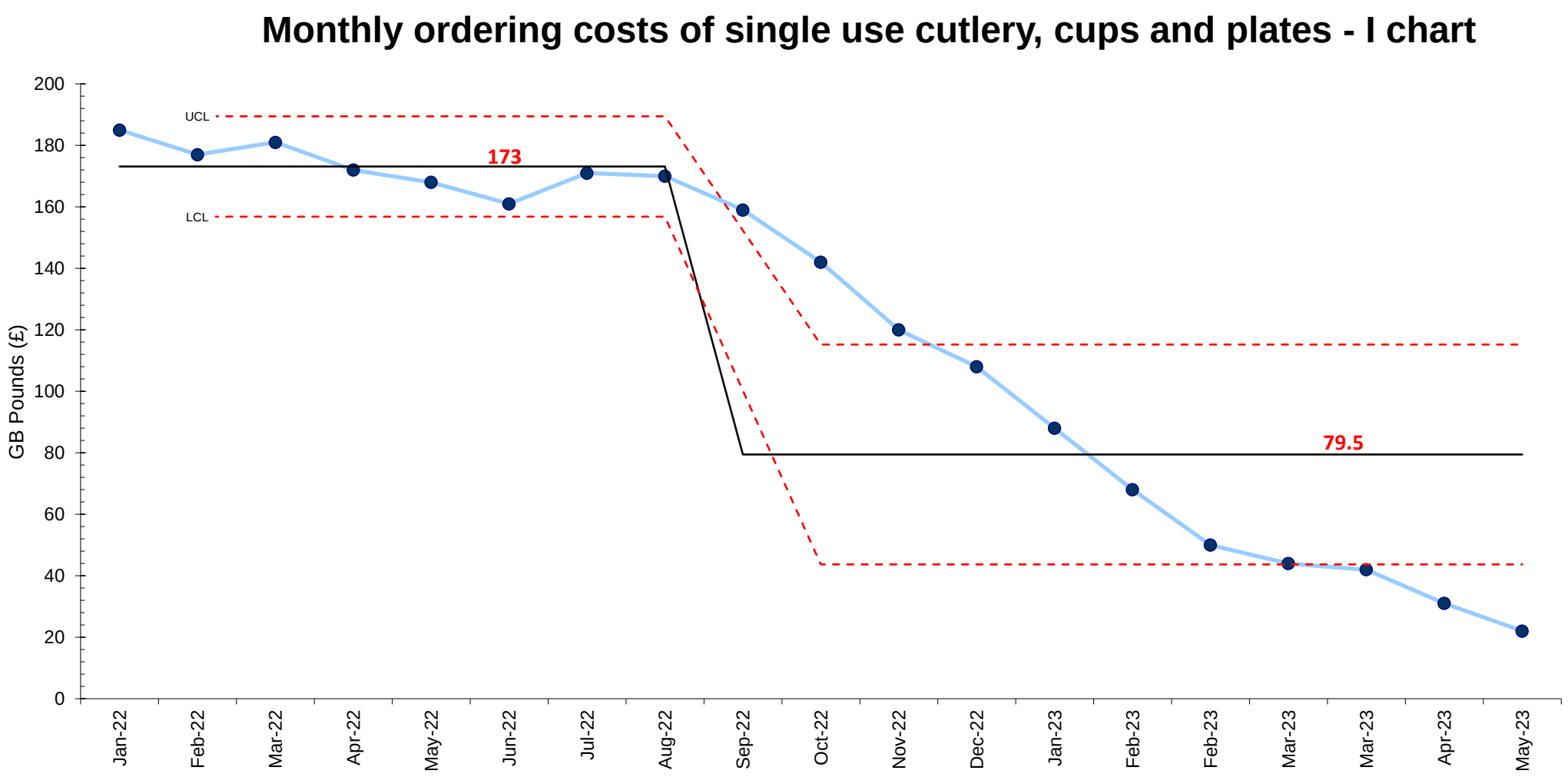
East London NHS Foundation Trust



Case study 1 – reducing single use cutlery

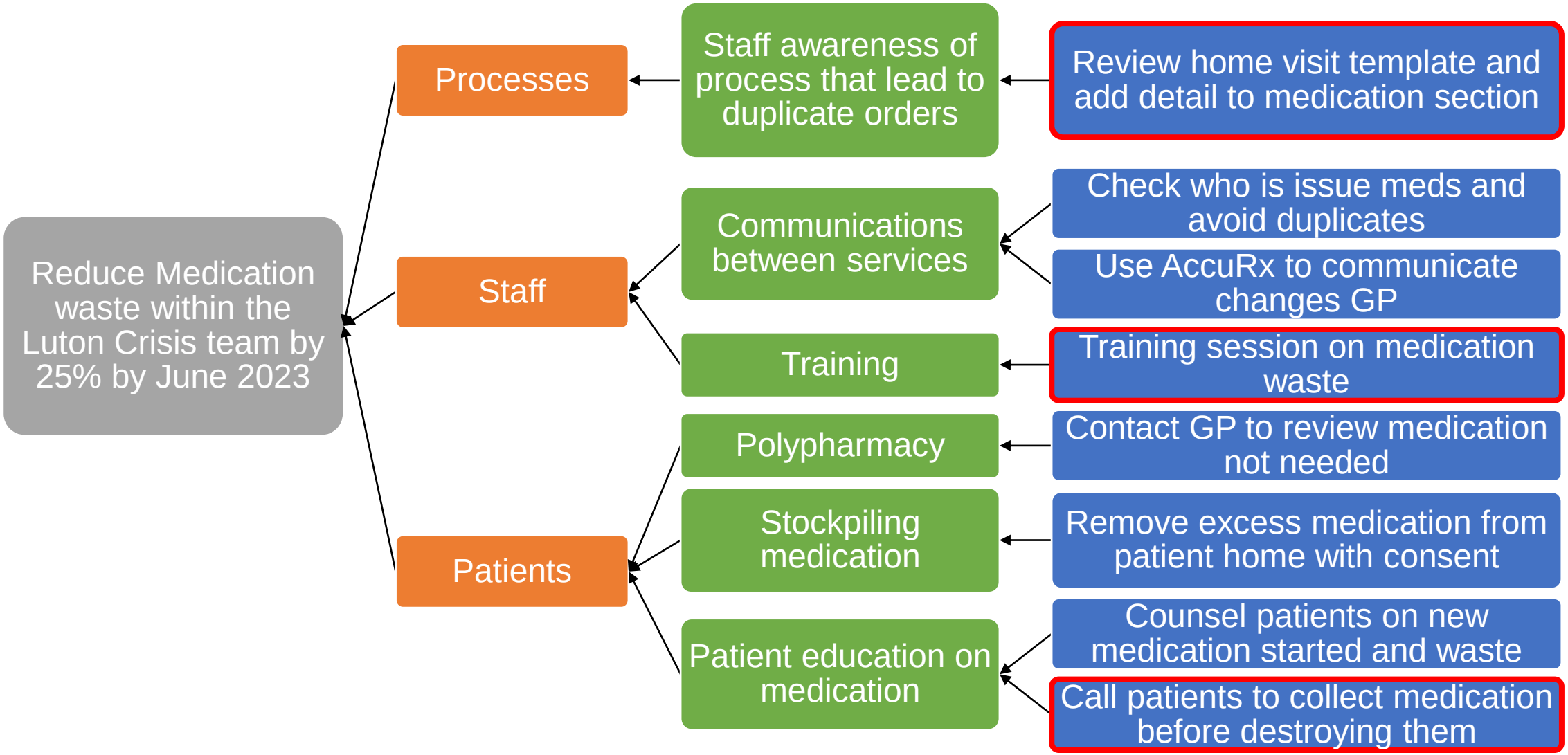
NHS East London NHS Foundation Trust

54%



Case study 2 – reducing medication waste

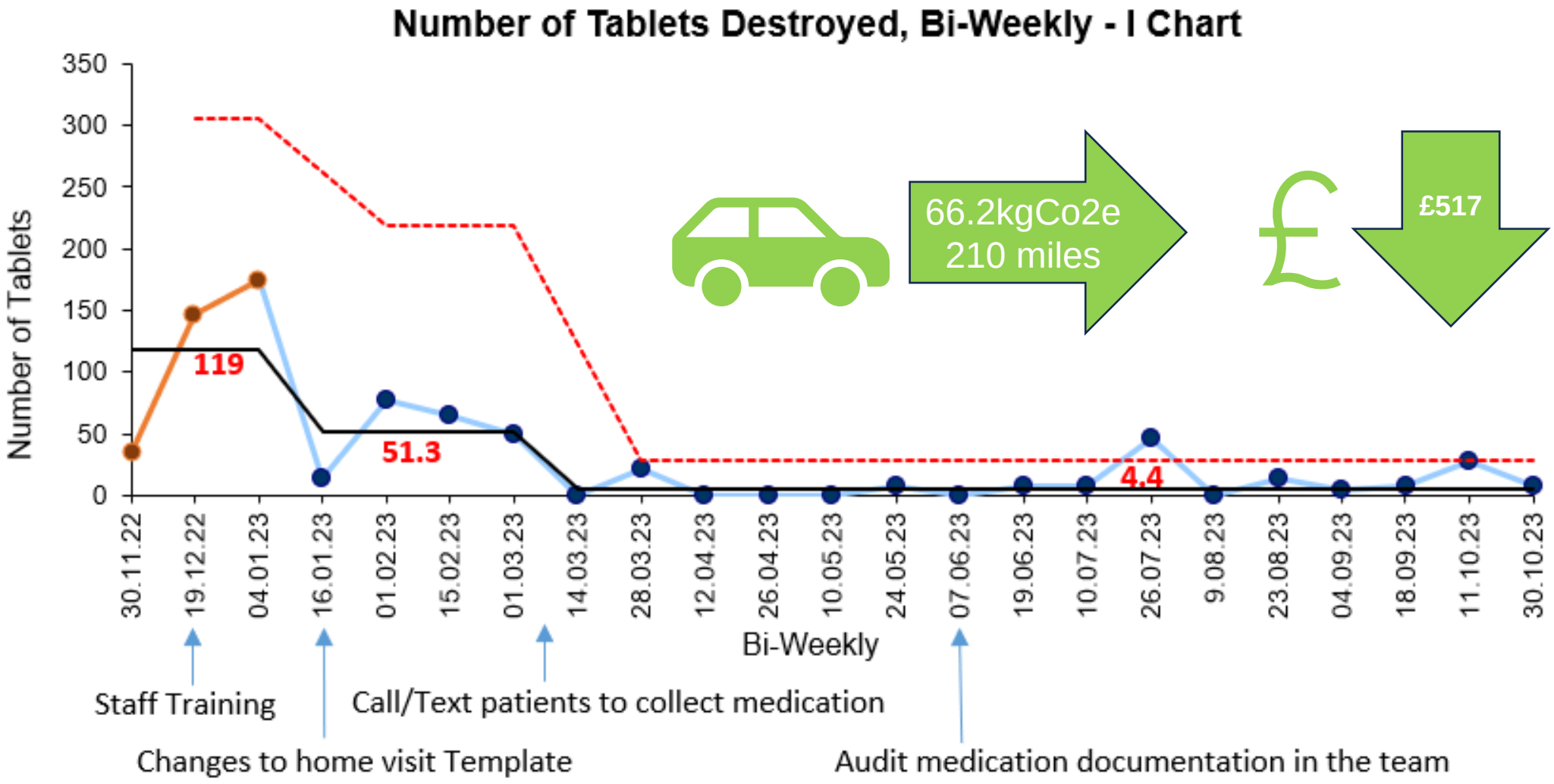
East London NHS Foundation Trust



Case study 2

NHS
East London
NHS Foundation Trust

95%



66.2kgCo2e
210 miles

£517

Key insights & future direction

East London NHS Foundation Trust

Senior leadership	Organisational sustainability culture with local autonomy
Service user involvement	Meaningful, not tokenistic
Measurement over time	Track impact
Scale up & spread	Change package & peer reviewed paper

Questions?

East London NHS Foundation Trust

Sarah McAllister sarah.mcallister4@nhs.net

Siân Hodgkinson sian.hodgkinson@nhs.net

Call to action

Based on what you have learned from this session, what's one change you can make within your own work environment to support sustainability efforts?