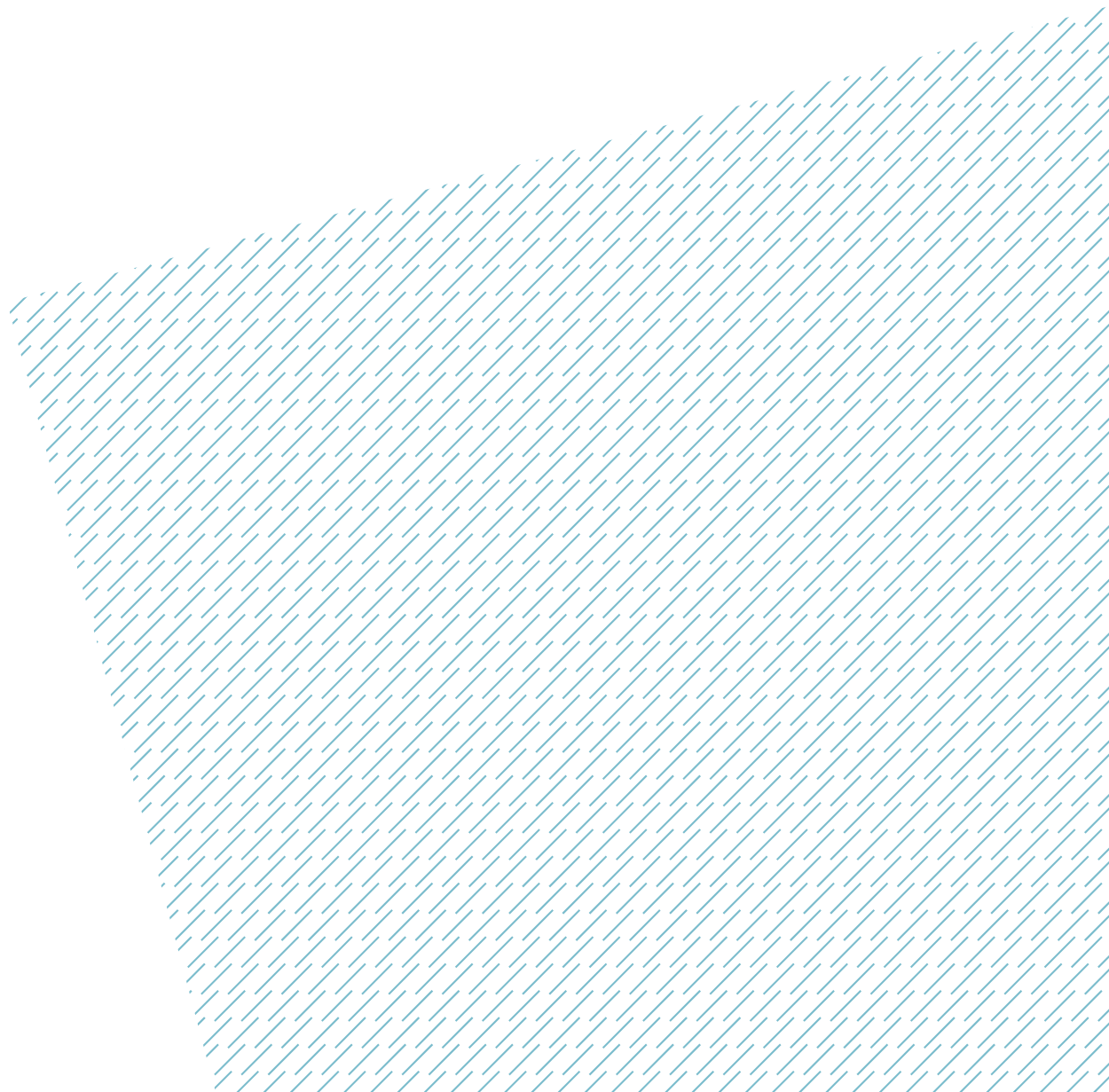




Health Service Environmental Sustainability Competition Guide

2025/26





Overview

This document introduces the 2025/26 University of Melbourne Health Service Environmental Sustainability Competition. It serves as a guide to lead a successful **sustainable healthcare quality improvement project** in your organisation.

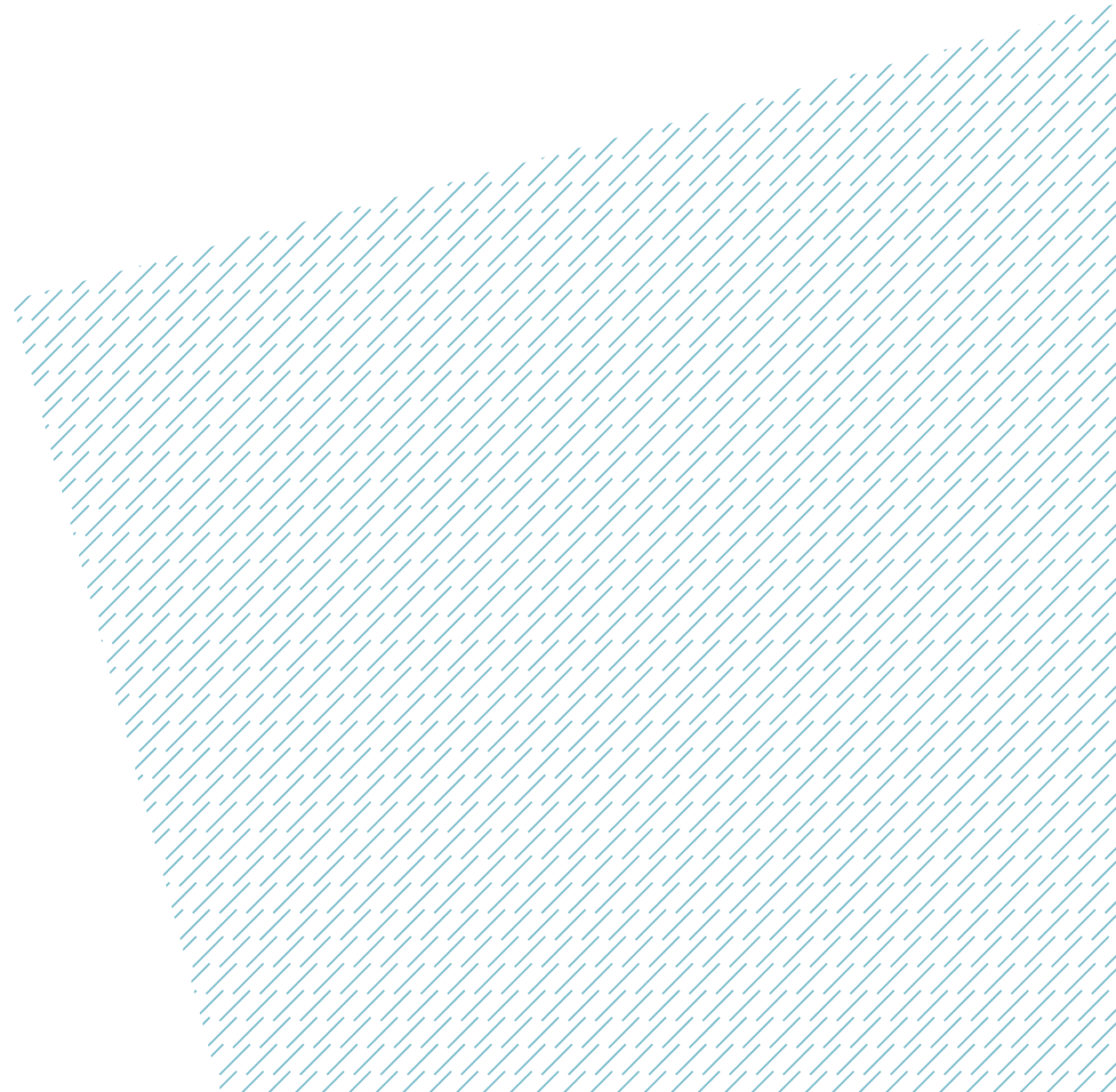
If you have further questions after reading this guide, please contact lindsay.scudder@unimelb.edu.au or ben.dunne@unimelb.edu.au

Contents

1. Why healthcare sustainability is important
2. Competition overview, marking criteria, key dates
3. Measuring environmental, financial and social impact



Why healthcare sustainability is important



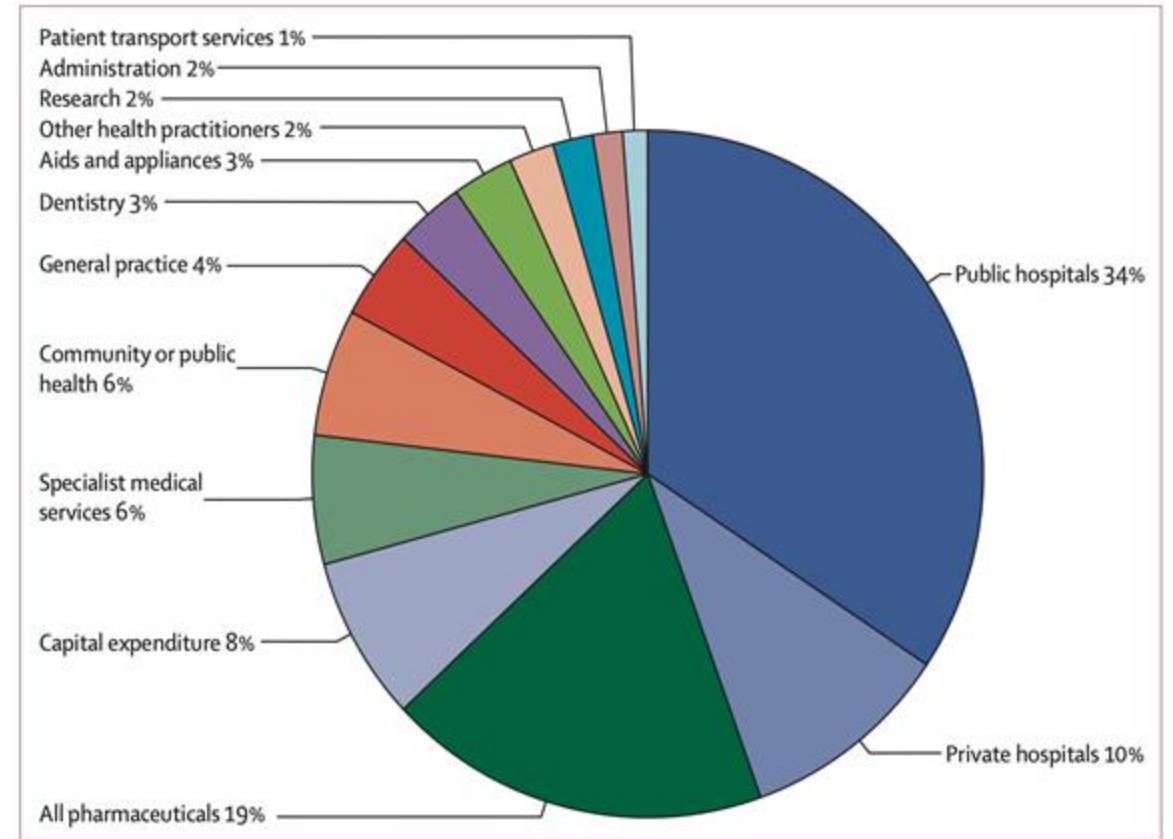
Healthcare's Climate Impact

The carbon footprint of Australian healthcare is 7% of Australia's entire emissions¹

This is more than the carbon emissions produced by all South Australians²

All vehicles on the road in Australia produce 10% of our emissions³

Worldwide 4% of global emissions come from healthcare... compared to only 2% from all aviation⁴



[1] Malik A., Lenzen M., McAlister S., McGain F. The carbon footprint of Australian health care *Lancet Planetary Health* 2;1;27-35

[2] South Australia Dept of Environment and Water 'Climate Change' 12 Feb 2023 <https://www.environment.sa.gov.au/topics/climate-change/south-australias-greenhouse-gas-emissions>

[3] Federal Dept of Climate Change, Energy, Environment and Water 'Transport' 12 Feb 2023 <https://www.energy.gov.au/households/transport>

[4] International Energy Agency 'Aviation' 12 Feb 2023 <https://www.iea.org/reports/aviation>

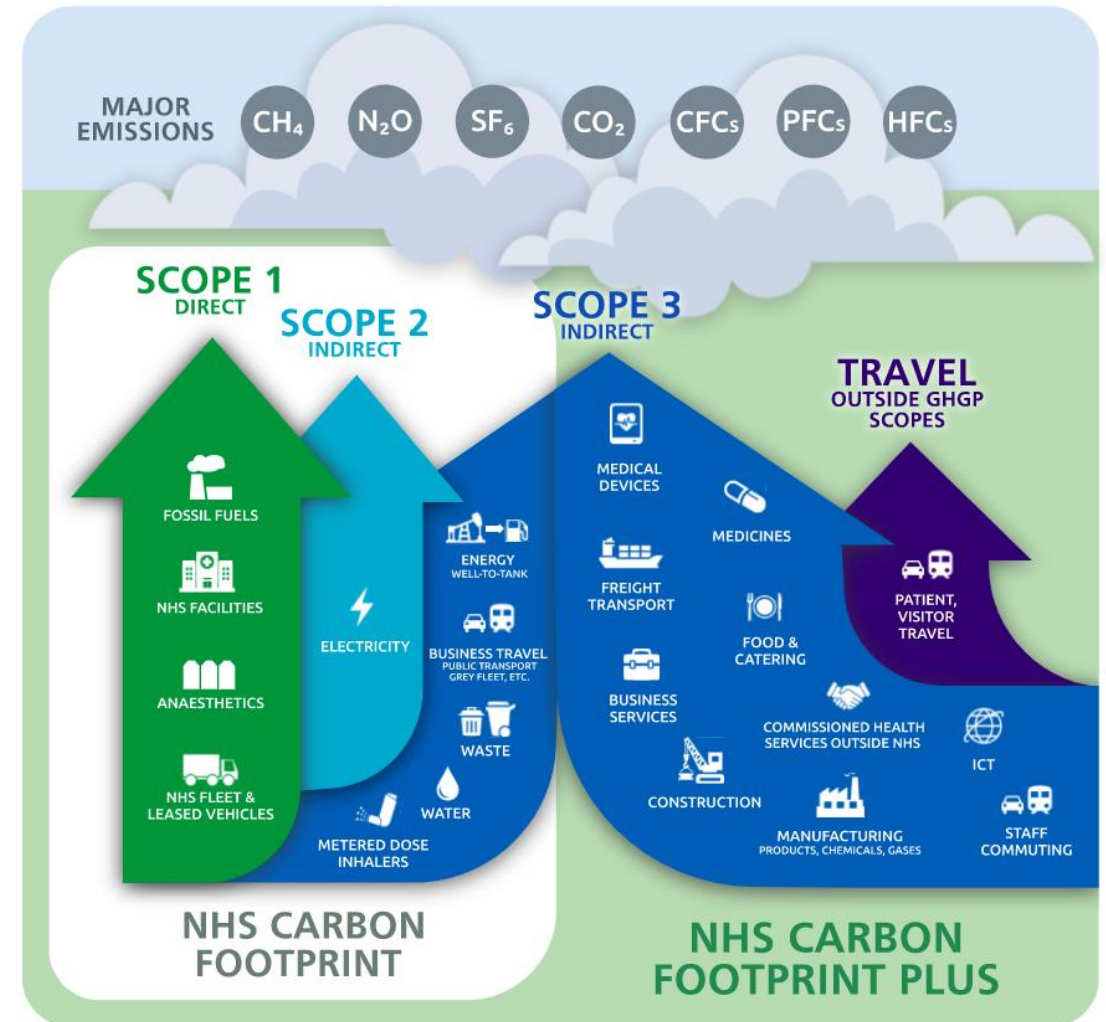


Healthcare Greenhouse Gas Emissions

Emissions are generated from many sources and are described according to scope of emission.

Scope 3 emissions make up the majority of all healthcare emissions. This is because every product we use has a carbon footprint.

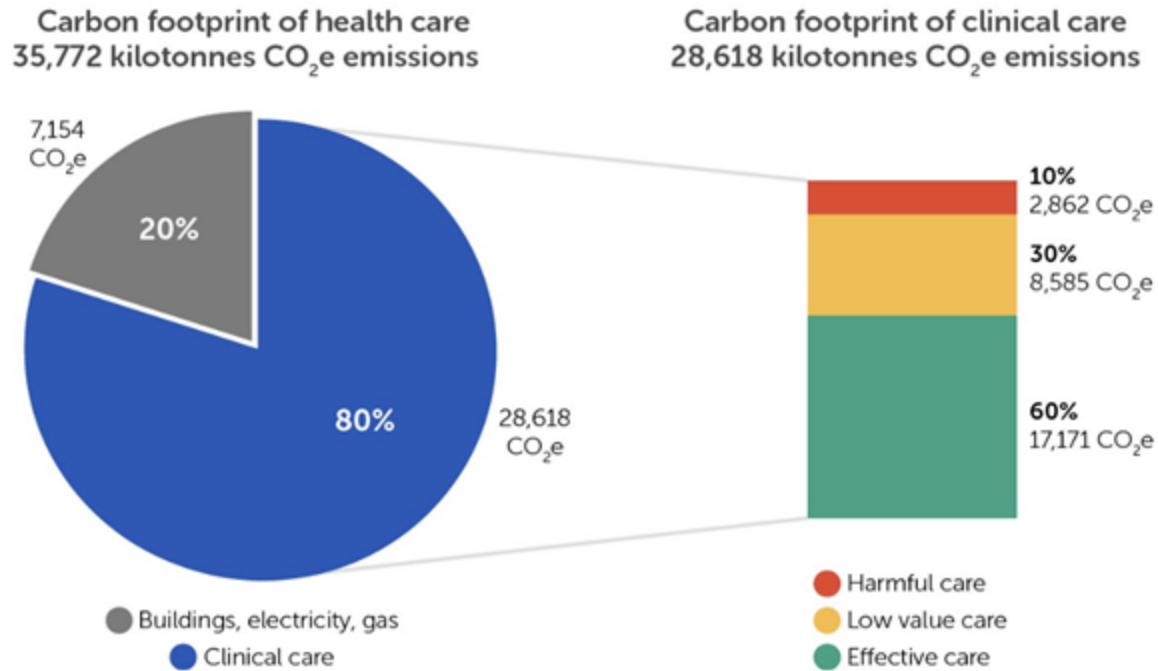
A carbon footprint is an estimate of greenhouse gas emissions associated with all steps of manufacture, use and disposal of that product. For example, a plastic kidney dish has a carbon footprint comprised of extraction of raw materials (fossil fuels used to produce plastics), emissions from energy used for manufacture, transport, and disposal.





Healthcare Greenhouse Gas Emissions

The carbon footprint of Australian health care and the share of its carbon emissions attributable to harmful, low value and effective care



80% of healthcare emissions come from clinical care provision (scope 3)

- Largely related to the products, medicines, tests and procedures we use

Of this clinical care:

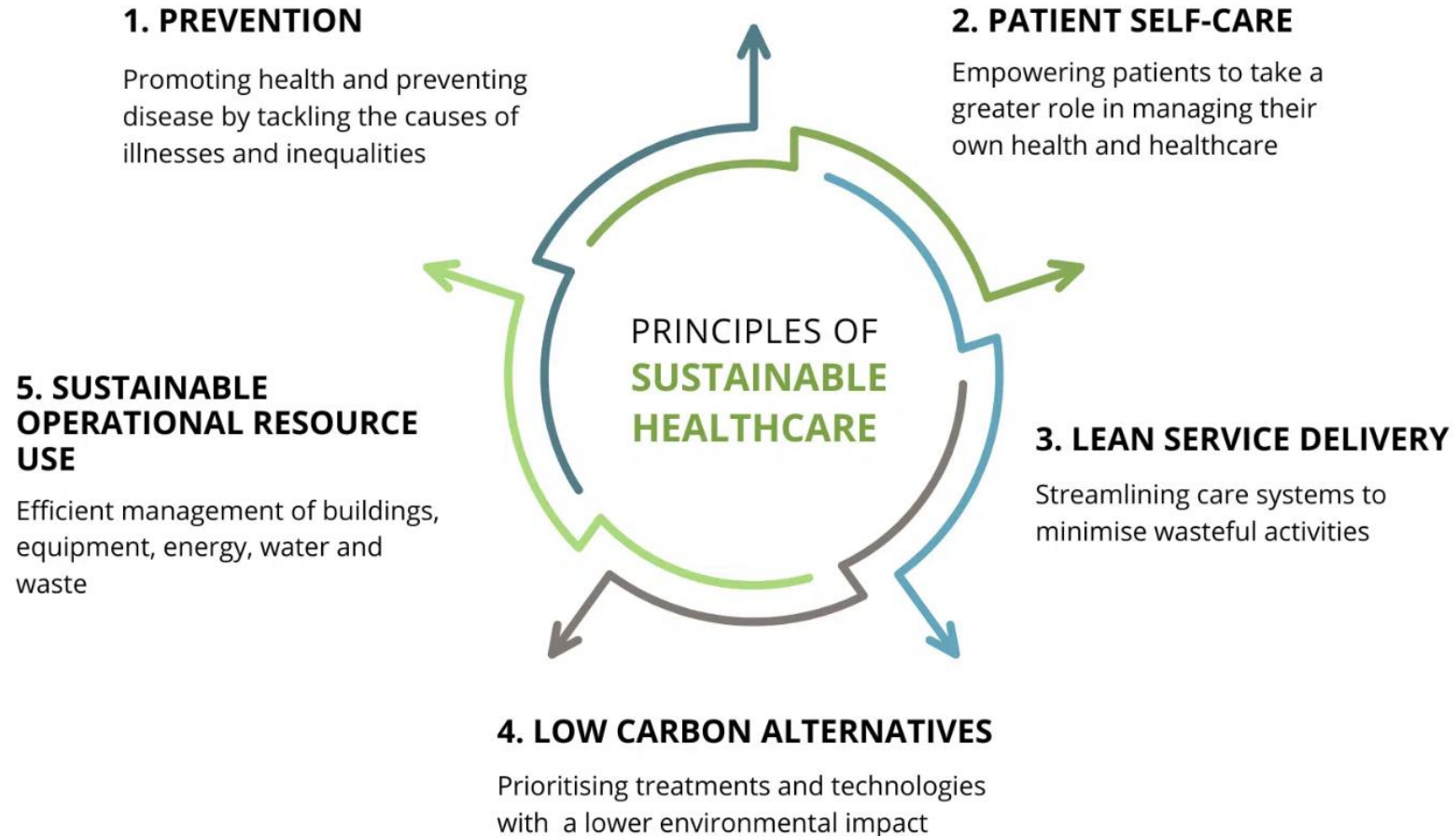
~60% of care is in line with evidence-based/consensus guidelines

~30% is wasteful or of low value to the patient

~10% is harmful

By reducing the wasteful/harmful care we can deliver better care for our patients is better care for our planet

Principles of environmentally sustainable healthcare



Improving **QUALITY** of care

Improving the **QUALITY** of care provided also has environmental benefits that are not just directly related to resource use and waste

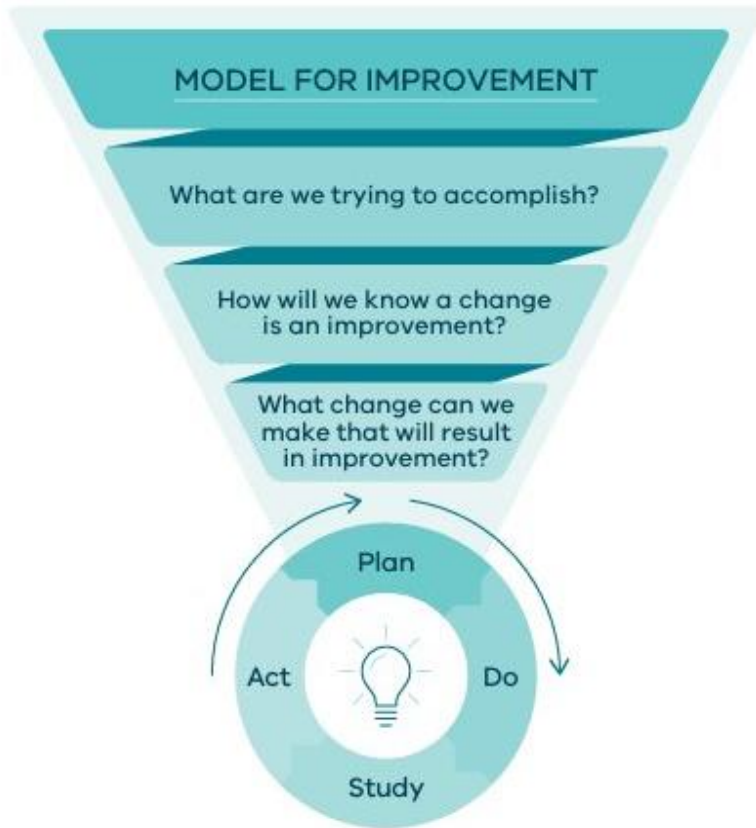
Preventing ill health prevents the carbon footprint of the care required to manage that illness

Any intervention that prevents illness, reduces complications, shortens length of stay or prevents readmissions has environmental benefits



The “triple bottom line”

Sustainability in Quality Improvement



The SusQI framework builds on the Model for Improvement and PDSA framework but adds a lens of measuring environmental and social impact to QI projects to achieve 'triple bottom line' benefits



Sustainability in Quality Improvement for Healthcare Workshops



All competition participants will have the opportunity to attend a full day SusQI workshop on Monday September 15th 2025

RMH Sustainability Competition 2022

13 Quality Improvement Projects
led by clinical and non clinical staff

Financial Savings
\$500,000

CO₂ savings
2.5 million kg eCO₂

Waste savings
250,000 items kept from landfill





Parkville Precinct Sustainability Competition 2023

17 Quality Improvement Projects led by clinical and non clinical staff

Financial Savings
\$160,000

CO2 savings
140,000 kg CO₂e

Waste savings
3 tonnes of waste out of landfill

The 2022 projects were maintained culminating in \$940,000 savings





Health Service Environmental Sustainability Competition 2024

14 Quality Improvement Projects led by clinical and non clinical staff

Financial Savings
\$770,000

CO2 savings
83,000 kg CO₂e

Waste savings
1.7 tonnes of waste AND 560,000 items
out of landfill

Selected audit of projects from 2022 and 2023 confirm cumulative savings of over \$2.1 million



Potential project ideas

Avoid

- Use of unnecessary products, devices etc.
- Higher carbon footprint products where a lower carbon footprint alternative exists. Such as, oral versus IV medications (eg. paracetamol).
- Single use plastic items where avoiding them has a low risk of influencing patient care. For example, bluey absorbent pads.

Reduce

- Audit and reduce routine testing in accordance with evidence/consensus guidelines – all tests come with a carbon footprint. Examples include CXRs, coagulation tests if not indicated, pre-operative blood tests.
- Staff travel and promote public/active transport.
- Clinical waste stream volumes through improved waste segregation.

Reuse

- Measure staff personal use of plastic products and explore reusable alternatives for use in break areas.
- Explore reusable alternatives for single use devices (SUDs).

Recycle

- Improve recycling stream compliance.
- Introducing a new recycling stream into a new area.



Environmental hierarchy

Previous competition entries

Clinical Practice Change: Choosing Wisely

Reducing unnecessary blood tests in the ED



CO₂

900Kg CO₂ e/year



\$240,000/year



Driving 6,164km

Green Procurement

Introduced re-usable goggles and face shields for PPE



CO₂

100,000 single use items kept from landfill

RMH Telehealth Program

Reduction in patient travel and N95 masks for clinic



CO₂

2.4 million Kg eCO₂ /year



\$150,000/year



Driving 16,438,356 km

Choosing Wisely in CTS PAC

Reducing pathology and CXR orders in preadmission clinic



CO₂

90Kg eCO₂/year



\$40,000/year

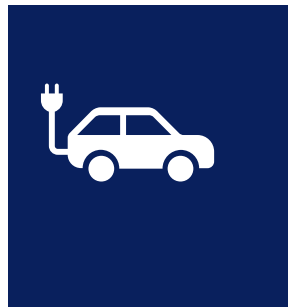


Driving 616 km


Previous competition entries

Zero Emission Fleet Vehicles

Switching fossil fuel vehicles for electric vehicles



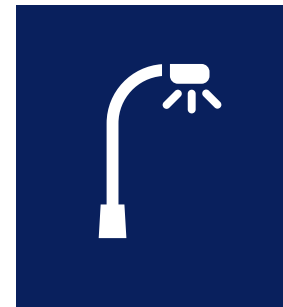
CO₂ 100,000 Kg eCO₂ /year

 \$60,000/year


 Driving 684,931 km

LED Lighting at Royal Park

Converting all RPC lights to LED



CO₂ 180,000 Kg eCO₂ /year

 \$43,000/year


 Driving 1,232,876 km

Paper Free Mental Health Triage Service

Going digital for faxes, team rosters and handover at Triage



CO₂ 250 Kg eCO₂ /year

 \$1,000/year


 Driving 1712 km

Paperless Revenue Services Project

Going paperless in the Revenue Services Office



CO₂ 342 Kg of eCO₂/year

 \$630/year




 Driving 2,342 km

Previous competition entries

Choosing Wisely in ED: IVC & CT KUBs

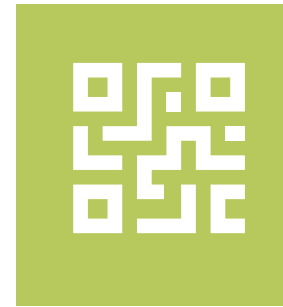
Reducing unnecessary IVC and CT KUBs in ED






-  6,000kg CO₂ e/year
-  \$60, 000/year
-  Driving 24,695km

Going Digital with QR codes

Patient brochures on QR codes instead of paper





-  2.02 kg eCO₂ /year
-  \$4.80/year
-  Driving 8.8km

Choosing Wisely in PAC: Coag Orders

Reducing unnecessary coagulation tests






-  63.5kg CO₂ e/year
-  \$42, 000/year
-  Driving 260km

Eliminating Nitrous Oxide

Eliminated the use of NO in theaters

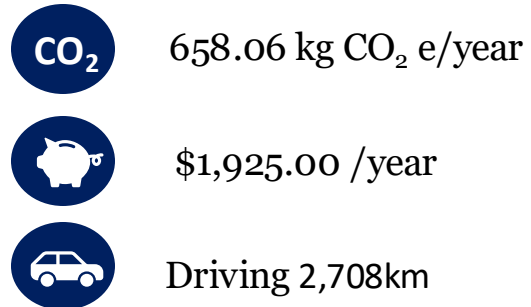


-  116, 000 kg CO₂ e/year
-  \$1,800 /year
-  Driving 477,456km

Previous competition entries

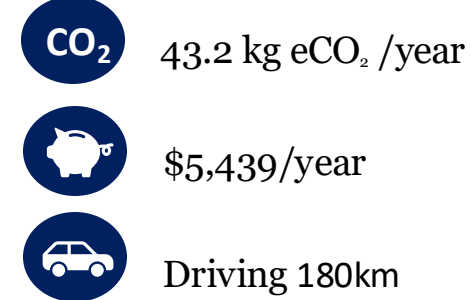
Food Waste Reduction

Reducing food waste in dietetics



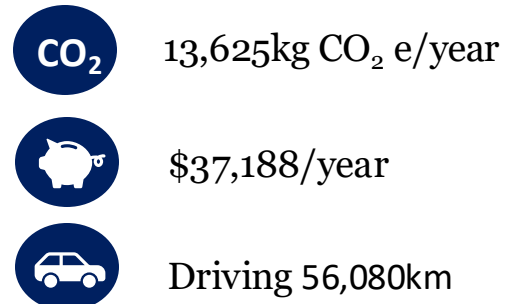
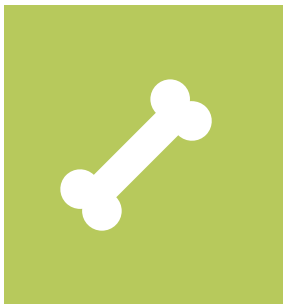
Dermatology

Environmental Sustainability in Dermatology



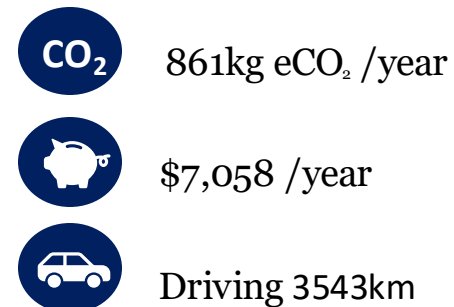
Virtual Fracture Clinic

Running spine fracture clinics online



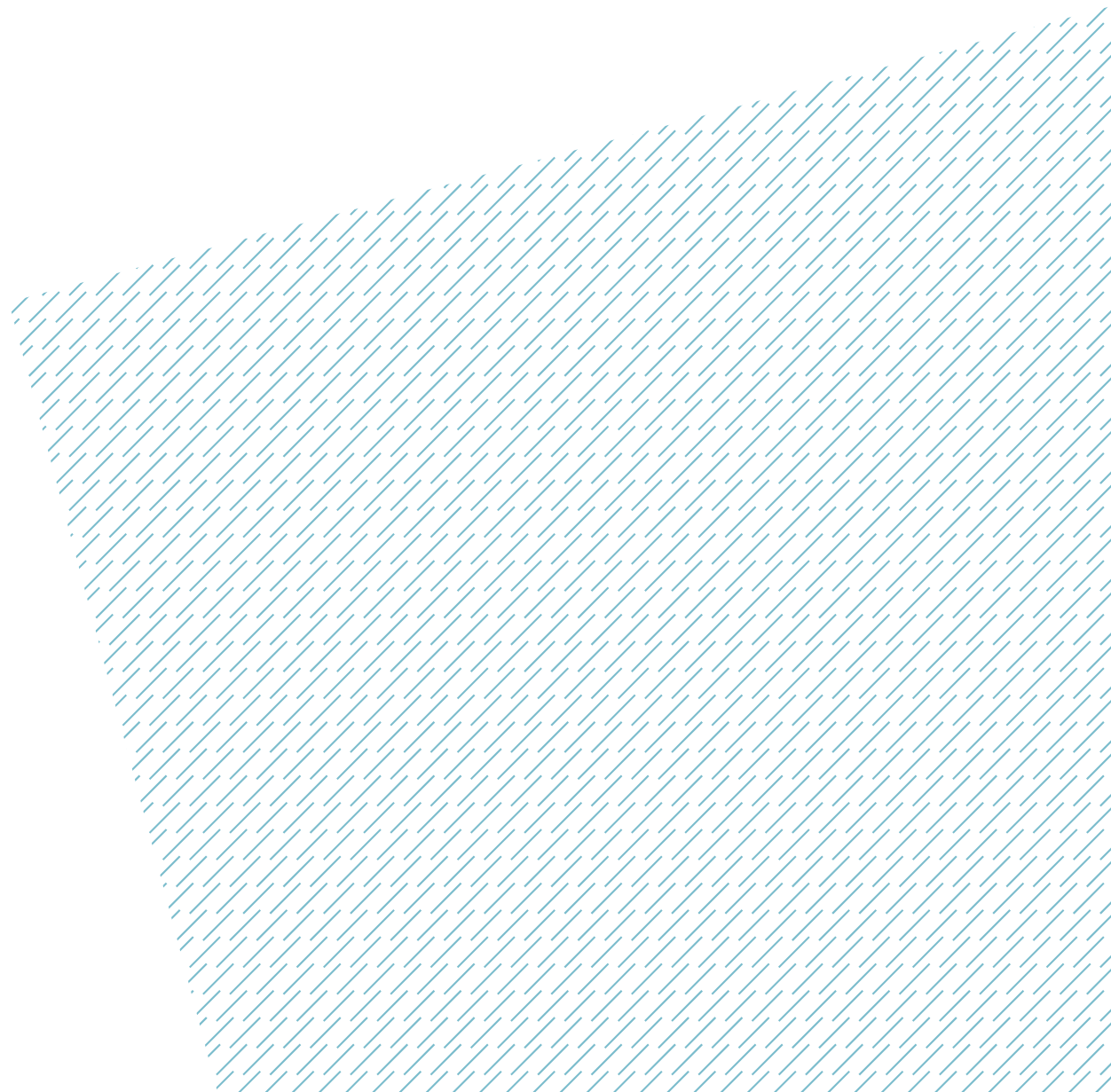
Reusable Drug Trays

Implementing reusable drug trays





Overview of the 2025/26 Health Service Environmental Sustainability Competition





2025/26 Health Service Environmental Sustainability Competition

Purpose

Building on the success of the previous 3 years of environmental sustainability competitions, this competition aims to continue to foster engagement in sustainable healthcare quality improvement initiatives by providing support resources to catalyse impactful initiatives that improve quality of care, reduce emissions and waste, are financially viable, and continue to engage health organisations and staff.

Objectives

- Promote environmental sustainability across University of Melbourne affiliated sites
- Reduce low value care
- Reduce our carbon and waste footprint
- Financial sustainability
- Foster a learning and improvement culture
- Support healthcare staff to instigate impactful workplace changes



2025/26 Health Service Environmental Sustainability Competition

Information for Participants

- Projects can focus on any area of the hospital including clinical care, energy use, waste management, supply chain, food service, facilities management, transportation, etc.
- Consider whether your project might require a Quality Assurance/HREC application for publication and check with your hospital Ethics Committee
- Teams or individuals can participate
- The projects will be judged by an expert panel
- Prizes will be awarded in the following categories:
 - Best Emissions Reduction Project
 - Best Waste Reduction Project
 - Best Clinical Change Project
 - Best Non Clinical Project
 - Each health service will also have a winner selected

Marking guidelines

Projects will be evaluated on:

- Emissions reduction: How effectively the project reduces carbon emissions
- Waste reduction: How effectively the project reduces waste
- Clinical outcomes: How your project improved patient care
- Social sustainability: How your project socially benefited patients, staff, or wider community
- Economic sustainability: The financial savings
- Generalisability: The potential of the project to be applied across different areas within your health service and beyond



Getting Started - Overview

Step 1: Go to the Competition Website

Step 2: Register your project idea

Participants do not need to register their idea in advance but are strongly encouraged to do so to access the resources, opportunities to attend our Sustainability in QI (SusQI) training day, and additional support from your local site leads and the UoM Sustainable Healthcare team. There is no closing date for registration.

Step 3: Download the Sustainable QI Project Planner and populate with as much information as you can

- Follow [this link](#) for additional resources on the susqi.org site
- Consider some of the tools in the [Safer Care Victoria QI Toolkit](#)

Step 3: Get guidance for your project

Once you have registered, your local Sustainability Team will contact you to support you with your project.

Consider attending our SusQI workshop on Monday September 15th – ask your site leads to register you as a participant from your site.

Step 5: Get going with your project!

Step 5: Populate the Project Submission Form and submit by April 8th 2026



Resource websites

Health Service Environmental Sustainability Competition

We are excited to announce the launch of the 2025/26 University of Melbourne Health Service Environmental Sustainability Competition!

This will be the 4th year of this competition. The competition aims to foster engagement in sustainable healthcare quality improvement initiatives by providing support resources to catalyse impactful initiatives that improve quality of care, reduce emissions and waste, are financially viable, and continue to engage health organisations and staff.

This year, participating health services include:

- Royal Melbourne Hospital
- Peter MacCallum Cancer Centre
- Royal Women's Hospital
- Royal Children's Hospital
- Austin Health
- St Vincents Hospital Melbourne
- Northern Health
- Western Health
- Mercy Health



[LINK HERE](#)

Project Registration Form Competition Guide

- Participant information
- Marking criteria
- Key dates

Sustainable QI Project Planner Project Submission Form



[Home](#) [About](#) [Do a Project](#) [Teach Others](#) [Green Team Competition](#) [SusQI Acad](#)

RESOURCES

Here you will find all the resources you need to carry out a SusQI project.

Please see our [Licensing page](#) to find out how to credit CSH when using our resources.

Click [here](#) if you would like to receive further training on the SusQI approach, or contact us [here](#).

What is SusQI?

[The SusQI Framework](#)

This paper by Mortimer et al sets out the SusQI Framework in detail

[The Triple Bottom Line](#)

Here, CSH explains the concept of triple bottom line analysis

[Principles of Sustainable Healthcare](#)

This paper by Frances Mortimer sets out the CSH principles of sustainable healthcare

[Sustainability in quality improvement: measuring impact](#)

This paper by Mortimer et al. using cases studies to discuss how different variables of sustainable v practice

[Concrete ways we can make a difference...](#)

This paper by Spooner et al presents an evaluation of trainee experience of SusQI and demonstrate engagement and motivate learners to contribute to the development of a sustainable healthcare sy

[Teaching skills for sustainable healthcare](#)

This paper by Stanford et al reviews the SusQI framework and outlines its value for engaging health transformation

[LINK HERE](#)



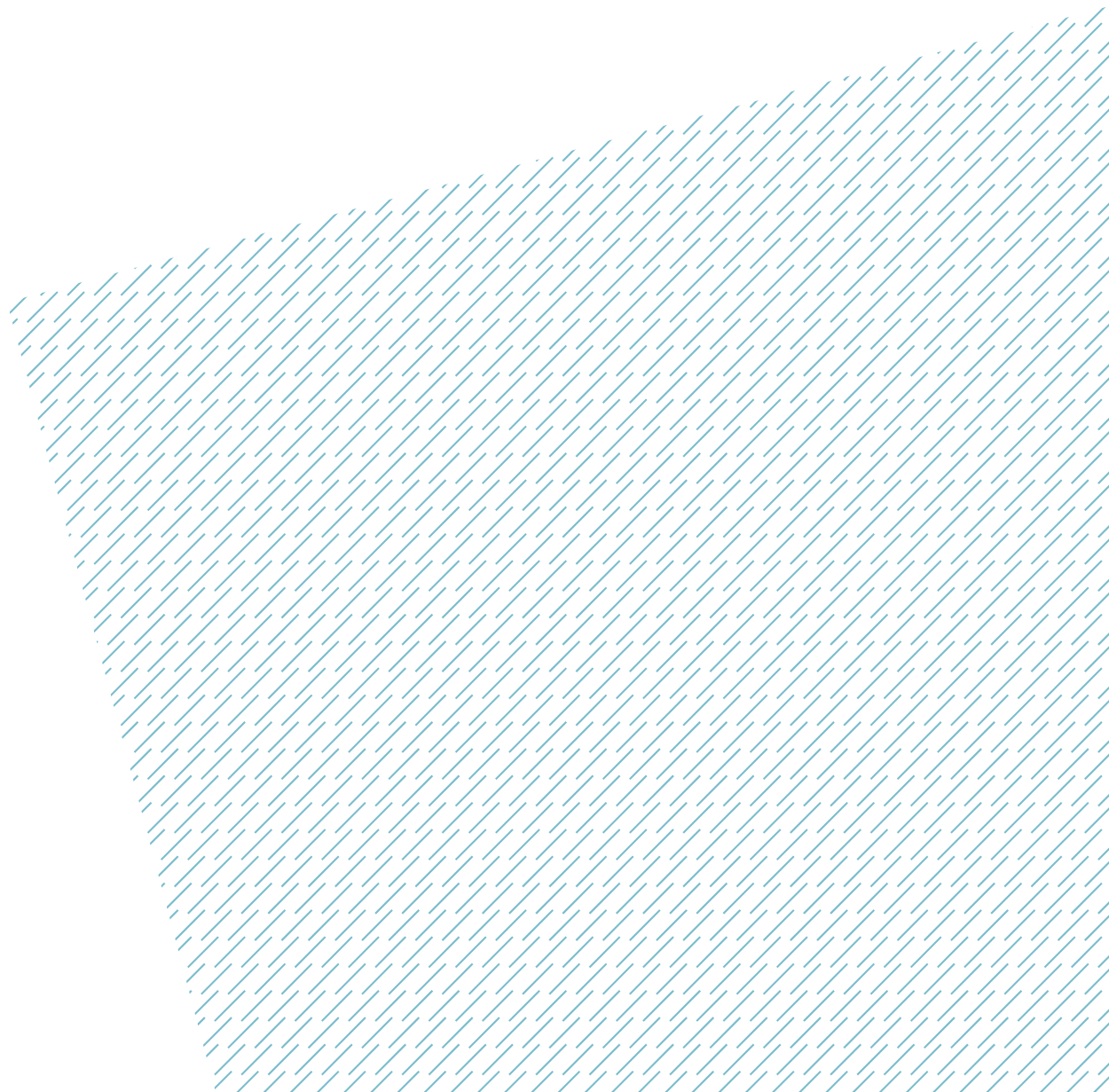
2025/26 Health Service Environmental Sustainability Competition

Key dates

June 4th 2025	<p>Project registration opens:</p> <ul style="list-style-type: none">• Participants register their project ideas, receive access to environmental sustainability quality improvement project resources, and access ongoing project support from the University of Melbourne Sustainable Healthcare Team• Participants do not need to register their project in advance but are strongly encouraged to do so for access to resources and support. There is no closing date for registration.
September 15th 2025	Education opportunity: SusQI workshop - setting you up for success
Date TBA	Drop in sessions for project support
April 8th 2026	Closing date for completed competition entries
May 2026	Winners announced
June 2026	Showcase event for 2025 competition and launch of 2026 competition



Measuring and using carbon footprint data





Environmental impacts can be measured in many ways

Common ways include:

- **Carbon footprint/GHG emissions – usually expressed in terms of carbon dioxide equivalent emissions or CO₂e.**
- **However, as it may not be possible to estimate the carbon savings for every project – other forms of environmental impact measures include:**
 - Waste reductions – usually expressed in mass / weight or number of items saved from landfill / diverted to other waste streams
 - Hospital admission avoidance / reduction in length of stay – this would inherently reduce emissions and waste, due to a reduction in resource use
 - Water reductions – expressed in litres of water reduced



What is the carbon footprint?

To estimate the carbon footprint of your activity/process, follow the below steps:

Obtain your activity data

A measure of a level of activity – e.g. reduction in tests, interventions, number of supplies, kg of waste, kilometres travelled.

Find an appropriate emissions factor

This number is a set quantity that represents the amount of GHG emissions that are typically released for that type of activity. An emissions factor is represented as: GHG emissions per unit of activity for a given emissions source.

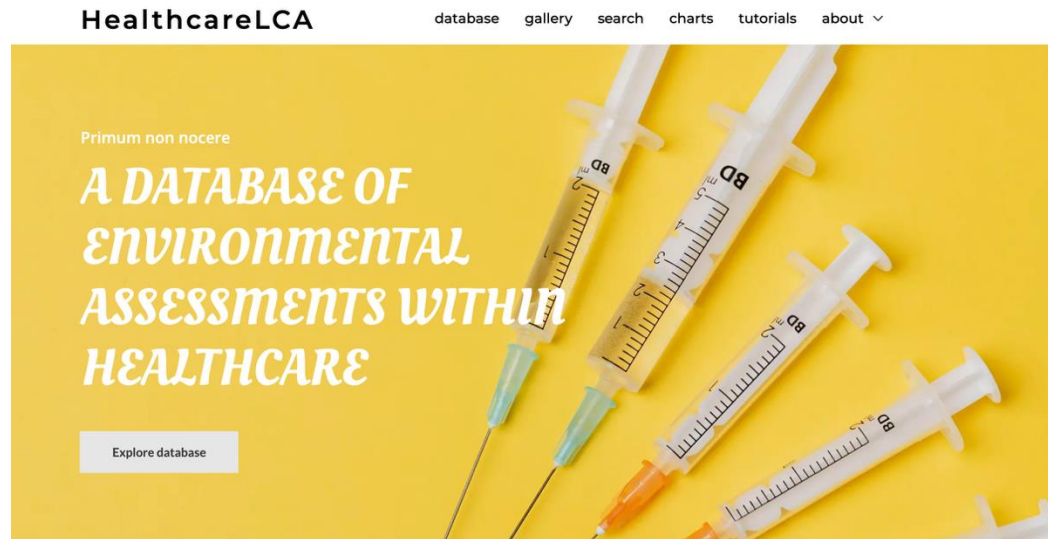
For example, one CT Kidney Ureter Bladder has an Emissions Factor of 1.09kg CO₂e per test

Use the below equation to estimate total GHG emissions/carbon footprint:

Carbon footprint (unit-CO₂e) = Activity data X emissions factor

The Healthcare LCA database

Includes the carbon footprint of individual items and procedures used in healthcare as well as the carbon footprint of entire healthcare pathways



<https://healthcarelca.com/>



Reliable data to help measure GHG emissions in Australia

Waste disposal	kgCO ₂ e/tonnes
Recycling	21
Recycling reusable instruments	21
Recycling reusable surgical linens	21
Recycling batteries	65
Low temperature incineration with energy for waste - dry mixed recycling, domestic waste	172
Low temperature incineration with energy for waste – non-infectious offensive waste	249
Autoclave decontamination plus low temperature incineration with energy for waste – infectious waste	569
High temperature incineration – clinical waste, medicinal contaminated sharps, anatomical waste, medicinal waste	1074
Food waste (NGERS)	2100

PPE	kgCO ₂ e/item
Single glove	0.026
Cup fit FFP respirator	0.125
Duckbill FFP respirator	0.076
Type IIR surgical mask	0.02
Type II surgical mask	0.013
Face shield	0.231
Apron	0.065
Single-use gown	0.905



Reliable data to help measure GHG emissions for pathology testing and imaging in Australia

3 Carbon dioxide equivalent (CO₂e) emissions for five common hospital pathology tests, with distance driven in a standard car producing equivalent emissions

	Mean CO ₂ e (g) (95% CI)	Equivalent distance in car (km/1000 tests)
Full blood examination	116 (101–135)	770
Coagulation profile	82 (73–91)	540
Urea and electrolytes	99 (84–113)	650
C-reactive protein*	0.5 (0.4–0.6)	3
Arterial blood gases	49 (45–53)	320

CI = confidence interval. * Ordered in conjunction with urea and electrolyte assessment. ♦

Additional CO₂e used for one more scan

	MRI	CT	CXR	US
Average scan time	27 min	8 min	2 min	20 min
Consumables	0.8	1.02	0.58	0.084
Electricity	0.3	0.07	0.002	0.002
Total	1.1	1.09	0.58	0.09

McAlister S, Barratt AL, Bell KJ, McGain F. The carbon footprint of pathology testing. *Medical Journal of Australia* 2020; **212**: 377–82

McAlister S, McGain F, Breth-Petersen M, Story D, Charlesworth K, Ison G, Barratt A. The carbon footprint of hospital diagnostic imaging in Australia. *The Lancet Regional Health–Western Pacific*. 2022 Jul 1;24.



Measuring financial impact in your project

- MBS online – mbsonline.gov.au
- Procurement data – ask your sustainability team or procurement team for help
- Staff time estimates or Time-Motion studies
- Waste disposal costs for different waste streams – ask your sustainability team

How can we achieve social sustainability within QI?

Avoid social harm to patients / carers / staff within QI projects

Tackle the social determinants of health, improving equity and equality in healthcare access and outcomes

Design socially beneficial interventions

- Local patient and community benefits

Reduce broader social harms

- Modern slavery in supply chains





Measuring social impact in your project



Identify some positive or negative impacts from the existing system on the groups below.

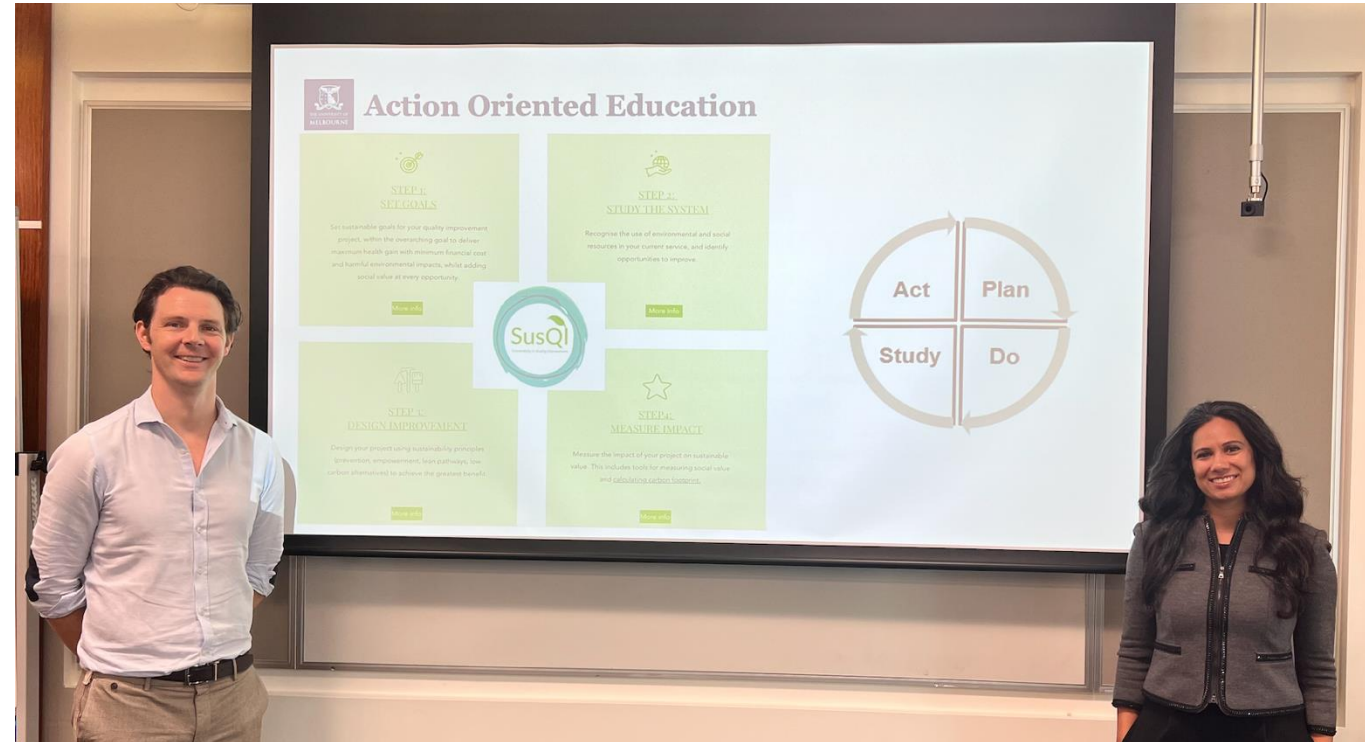
Population Group	Potential Impacts	Data Source
Patients		
Employees		
Local Community		
Broader Community (e.g. supply chain)		
Target populations <ul style="list-style-type: none">• Unemployed/ underemployed• Carers• People with disabilities• Older people• Culturally and linguistically diverse people• Homeless / housing stress• Refugees, asylum seekers• Aboriginal and Torres Strait Islander people		

Sustainable Quality Improvement Workshops

“It is easy to feel hopeless with news of climate change. SusQI is valuable as it gives concrete ways in which we can make a difference, rather than just learning about the problem.”



Spooner et al. “Concrete ways we can make a difference”: a multi-centre, multi-professional evaluation of sustainability in quality improvement education. *Medical Teacher* (2022).



Upcoming SusQI Workshop Date: Monday September 15th.

Register your project idea to receive information about the upcoming workshop and project support sessions



Key contacts

Have a question, big or small?

Contact the University of Melbourne Sustainable Healthcare team

Ben Dunne

Ben.dunne@unimelb.edu.au

Lindsay Scudder

Lindsay.scudder@unimelb.edu.au

