



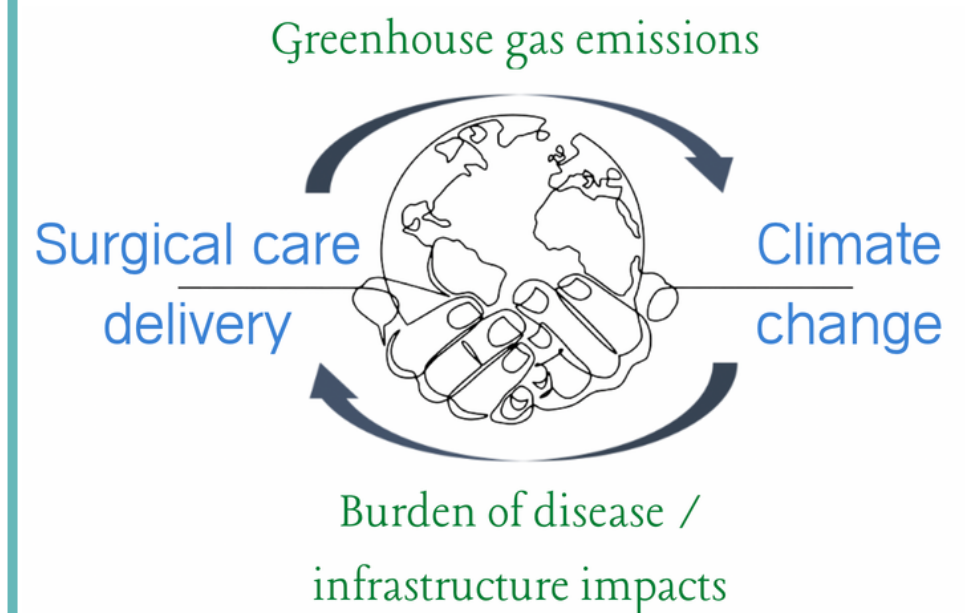
# Conducting climate change and surgery orientated research and Quality Improvement

**Climate change is the biggest global health threat of the 21st century \***

More than 80 million deaths estimated to occur due to carbon emission between 2000 and 2100 §

**Surgery and climate change are locked in a vicious cycle**

Surgery contributes significantly to carbon emissions, while climate change impacts on surgical burden of disease and surgical care infrastructure



**The US government spends just \$5.3M/year on climate and health research**

By comparison National Institutes of Health (NIH) alone awarded \$33B in research grants in 2022 ¶

## 1 IDENTIFY...

the local research or QI needs at your institution based off recent publications

The other **COAST climate change and surgery hot topics** are an excellent resource to give you ideas for smaller scale projects within your own department

## 2 ENGAGE...

with organisations such as **Health Care Without Harm** and **Practice Greenhealth**

Such institution may support development of local sustainability initiatives

Surgery specific groups like **COAST** are also useful resources

## 3 FUNDING

There are increasing numbers of climate and health funding sources.

The **NIH climate change and health initiative** is just one example.

Smaller seed grants such as the **Burroughs Wellcome Fund** are also available

## 4 ENSURE CLIMATE JUSTICE

Even those working outside of the climate change space can consider the environmental impacts of their work.

Striving for sustainability in your research practice will improve impact and increase likelihood of adoption / implementation in other centers

Take the final step and push for publication of both local QI initiatives as well as more formalized research projects. It need not be only academic centers that share their work. Both peer-reviewed journals and open access platforms such as ResearchGate can house your work

## RESEARCH GAPS

There is a lack of primary research in the 'surgery and climate change' space



### Life Cycle Assessments (LCAs) ¥

Emissions from surgical care are highly procedure- and context-specific. Tracking and reporting of these emissions is a relatively new practice.

While labour intensive, there is a need for LCAs of more procedures and across more facilities

### Modelling of climate change impacts

Both on prevalence of surgically-treated diseases and on surgical care provision capacity.

Most existing literature in this space is case report based. US-based practitioners can utilize existing surgical databases and registries to address these research gaps

### Identification of innovation

Intersectoral collaboration with scientists, engineers, and industry partners in development of technological solutions eg solar powered devices

Sustainability can also be achieved through low- or no-tech innovations e.g. improved OR utilization / reduced turnover time

BENEFITS

COST SAVINGS

The benefits and cost saving of research and/or QI projects are project specific.

Examples of these benefits and cost saving are outlined in other COAST Climate Change and Surgery Hot Topics



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