



Healthcare  
Improvement  
Scotland

**SHTG**  
Advice on health  
technologies

# An evidence review of interventions aimed at improving the environmental sustainability of surgical operating theatres

Plain Language Summary | July 2024

## What are green theatres?

'Green theatres' is a term used to describe operating theatres that use methods and materials that are less harmful to our planet.

Green theatres focus on reducing waste, saving energy and using materials and technologies that cause as little impact on the environment as possible, while ensuring that patients are safe and given high-quality care. Some examples include using energy-saving lights and equipment, recycling and finding ways to lower carbon emissions.

## Why is this important?

NHS Scotland is trying to reduce its impact on the environment. The health sector produces a lot of pollution and waste, and operating theatres are a big contributor to this because they use a lot more energy and produce more waste than other parts of a hospital. This means we need to find ways to reduce the damage that operating theatres have on the environment.

## What we did

We looked for research studies that describe different ways to reduce the impact of operating theatres on the environment. We gathered information from these studies to tell us how well these actions work, and whether they offer good value for money.

## What we found

We did not find much good quality information on how well different actions reduce the environmental impact of surgical theatres.

We found research that says that lowering energy use and using reusable equipment can help to reduce the impact of operating theatres on the environment. Most of the electricity used in theatres (90–99%) is for heating, ventilation and air conditioning. Electricity can be saved by doing different things like using energy from renewable sources such as sunlight and wind power, installing sensors to know when people are in the room, fitting lights that use less energy, and having air conditioners and water systems that do not need a lot of energy. Reusable equipment is better for the environment than single-use products and saves money over time, even though it might cost more at first.

We found studies that said that following the 5Rs rule of ‘reduce, reuse, recycle, rethink and research’ can provide benefits and reduce waste. Examples of changes made because of the 5Rs rule included adding recycling bins and carefully considering how much equipment is needed. These actions are good for the environment and can also save money.

The research that we found said that it is sometimes hard for environmentally friendly changes to be made in operating theatres. For example, staff might feel that they are not well supported by their managers to make changes, or they may not know what the best changes to make are.

We need more research on green theatres. It would also be helpful if there was more information on the effects of any actions on patient outcomes, the environment, and costs.

## What is our conclusion

There is not much research evidence to help us decide how to make surgical care better for the environment.

Small changes in how things are done can also make a big difference. For example, turning off machines when they are not being used and using reusable equipment can help reduce waste and make operating theatres more environmentally friendly.

Changes that aim to make surgical care more environmentally friendly usually focus on using fewer resources, which often saves money. For example, buying reusable surgical equipment may save money in the long run, even if it costs more at first.

## What next?

This report will be shared with the National Green Theatres Programme to inform the development of actions aimed at improving the environmental sustainability of surgical care in NHS Scotland.

This plain language summary has been produced based on Scottish Health Technologies Group (SHTG) Assessment of Green theatres: improving the environmental sustainability of surgical operating theatres. July 2024.