Consideration of Carbon Cost-Effectiveness and Planetary Health in Clinical Trials

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To the Editor:

Cataract surgery is already one of the most widely performed surgeries worldwide and the ageing global demographic is projected to cause demand for cataract surgery rise faster than available resources to meet that demand, placing increasing burden on healthcare systems, society and environment.[1] The recent BICAT-NL study by Spekreijse et al.[2] serves as a timely addition to the literature supporting the safety and superior cost-effectiveness of immediate sequential bilateral cataract surgery (ISBCS), in comparison to the conventional model of delayed sequential bilateral cataract surgery (DSBCS).

The WHO defined the 7 domains of *quality* that should be embraced by health services (**Table 1**). Nevertheless, healthcare systems/interventions that score highly on all 7 domains but with high carbon footprint can no longer be deemed sustainable/acceptable. Healthcare systems are responsible for ~2 gigatonnes of carbon dioxide equivalent ($2x10^{12}$ KgCO2e) annually, accounting for 4-5% of global greenhouse gas emissions.[3] In view of the significant impact,[3,4] we advocate the inclusion of "carbon cost-effectiveness" as the potential 8^{th} domain of quality in healthcare services. For instance, carbon cost-effectiveness or even carbon cost-utility can be measured by calculating the quality-adjusted-life-year/KgCO2e. This proposition resonates with the recent advocacy by McAlister et al.[5] on incorporating carbon footprint into health technology assessments, and we would encourage all RCT's to consider comparing the carbon cost-effectiveness of each arm to avoid adopting interventions that are relatively effective, but ultimately unsustainable. For BICAT-NL, however, inclusion of this outcome could be expected to demonstrate superior carbon cost-effectiveness than DSBCS and strengthen the evidence for its adoption.

Table 1. Summary of the domains of quality of care that should be embraced by quality health services, as defined by the World Health Organisation (WHO).

Domains	Description
Effective	Providing evidence-based healthcare services to those who need them.
Safe	Avoiding harm to people for whom the care is intended.
People-centred	Providing care that responds to individual preferences, needs and values.
Timely	Reducing waiting times and sometimes harmful delays.
Equitable	Providing care that does not vary in quality on account of gender, ethnicity, geographic location, and socio-economic status.
Integrated	Providing care that makes available the full range of health services throughout the life course.
Efficient	Maximising the benefit of available resources and avoiding waste.
Carbon cost-effective*	Providing care that minimises the carbon footprint and environmental impact.

*The authors advocate for the inclusion of “carbon cost-effectiveness”, which is currently not included as part of the quality of care.

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