

Our Anaesthetic and Our Future – Collaborating with Children to Reduce Healthcare’s Carbon Footprint



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Introduction

Climate change is one of the greatest health threats of the 21st century. Anaesthetic gases represent 5% of the carbon footprint for acute NHS organisations with nitrous oxide contributing over 75%^[1]. Paediatric anaesthesia is a major contributor to emissions, considering the high flows and utilisation of nitrous oxide in inhalational inductions. There is also less routine use of total intravenous anaesthesia (TIVA) compared to adult practice^[2]. By increasing uptake of intravenous inductions and promoting TIVA use we hope to reduced the environmental impact of anaesthesia. The children we care for today, will face the consequences of the climate crisis, and so engagement with them is key if we are to enact effective sustainable change. This year GOSH declared a climate emergency committing to net zero emissions. It requires our collective efforts to achieve this ambitious aim.

Method

On a Saturday morning in January 2021, we facilitated a session with the Young People’s Forum (YPF) at Great Ormond Street Hospital (GOSH), a group representing patients aged 10-21. Over forty children attended via Zoom, and we discussed the environmental impact of anaesthesia. Following a short presentation on the environmental impacts of inhaled vs intravenous anaesthetics we hosted a quiz and interactive breakout sessions with the group. These sessions focused on *their* experiences of anaesthesia, and how we could encourage more children to consider IV inductions. Interactive whiteboards allowed the YPF to collate their opinions, and further information was gained via a post-session survey. Due to the nature of this project, it was agreed ethics clearance was not required.

Results

We were truly inspired by the passion and level of engagement demonstrated by the YPF. Distinct themes emerged around preferences for IV or gas induction (see tables). The YPF went on to make a series of recommendations to improve the uptake of IV inductions.

- *Creation of a video to show children how IV induction works.*
- *Having a cheerful anaesthetist.*
- *Use of cream and cold spray so children feel everything has been done to stop the cannula hurting.*
- *Early preparation at pre-operative assessment for IV induction.*
- *Educate on positives of IV including faster wake up, less nausea and the environmental benefits.*
- *Inform the child about every step of the anaesthetic to maintain trust and be honest about the fact the cannula might hurt.*
- *Recognising the child’s ability to choose the type of induction even at a young age.*
- *Distraction techniques.*

Why do you prefer IV inductions?	Why don't you like IV inductions?	Why do you prefer gas inductions?	Why don't you like gas inductions?
Faster going to sleep	Increased anxiety	Go to sleep more slowly	Smell of the gas
Faster waking up	Fear of needles (especially younger children)	Avoids having a cannula awake	Feels suffocating and claustrophobic
Feels like they are flying	Cream and cold spray do not always work	Avoids anxiety around IV induction	Gives them a headache
Feels like they are floating	Too fast		Feel like they are drowning
Less groggy when they wake up			Bad for the environment

The follow-up survey showed that 95% of responders (21/22) felt the session increased their understanding on the environmental impacts of anaesthesia, whilst 90% would now choose an IV induction over inhaled.



Discussion & Conclusion

Providing children with accessible and honest information, well in advance of surgery will help them to make informed decisions on their care. We are currently working with the YPF to make videos and leaflets on anaesthesia techniques and their environmental impact to assist with this aim. Engaging children in how we can reduce the environmental impact of anaesthesia is essential if we are to achieve the aim of a Net Zero NHS by 2040^[3]. The co-benefits involved in engaging and empowering our patients will help us to deliver better care to the children we serve, while protecting their futures.

References

- The Royal College of Anaesthetists. Environment and Sustainability. <https://www.rcoa.ac.uk/about-college/strategy-vision/environment-sustainability>. Last accessed 27th January 2021.
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