

Anaesthetics, economics and the environment

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Background and Aims

Anaesthetic gases account for 5% of the carbon footprint of acute healthcare organisations¹. By reducing volatile anaesthetic use, the environmental and economic impact across the NHS could be significantly reduced. Techniques such as Total Intravenous Anaesthesia (TIVA) can avoid volatile anaesthetics completely. By comparing data from 2017, it can be established whether there has been any improvement in the efficiency, volume, and therefore cost, of volatile anaesthetic use at the Royal Victoria Infirmary (RVI).

Methods

The consumption and uptake of volatile anaesthetic agents was recorded for 5 weekdays across 25 theatres. The total consumption of each and the efficiency of their use was calculated for each theatre allowing the cost to be documented. The number of operations using TIVA was recorded and findings were compared to 2017 data.

Results

There was no overall improvement in efficiency of volatile anaesthetic use, however there was a significant decrease in the number of operations using desflurane (21 vs 35). Despite more operations being recorded in 2019 data, less isoflurane and desflurane was used, saving £371.34 from 2017. Paediatric theatres had a significantly higher use of sevoflurane and total sevoflurane cost had increased by £122.19, however overall there was a net saving of £371.34. 22% of the operations recorded used TIVA.

Conclusions

Desflurane is known to have worse global warming potential and higher cost than isoflurane and sevoflurane; education about this could account for its decreased use. Paediatric theatres use sevoflurane for gas inductions in theatre, hence its greater use. No data on TIVA use was recorded from 2017, however 22% represents a high proportion of cases and it would be interesting to compare future data on

its use. As only theatre use of volatiles agents was recorded, anaesthetic room use could potentially also be optimised.

1. Carbon Footprint from Anaesthetic gas use. (2013) Sustainable Development Unit.http://www.sduhealth.org.uk/documents/publications/Anaesthetic_gases_research_v1.pdf(accessed10/6/19)