

Nitrous oxide supply to Australian public hospitals; a cross-sectional analysis

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Background

Nitrous oxide (N₂O) is used predominantly in anaesthesia, obstetrics, and in the emergency department (primarily for paediatrics procedures) (1). N₂O has a global warming potential approximately 273 times that of carbon dioxide (CO₂) (2). To address Australian healthcare's contribution to the national carbon footprint, data on key contributors (carbon hotspots) are needed. N₂O is a reportable gas under the Australian National Greenhouse and Energy Reporting Scheme. However, such data are currently difficult to access.

Results & Discussion

This is the first audit of medical N₂O procurement in Australian healthcare. Across the five years 242,631±16,301 (mean±SD) kg of N₂O, or 66,358±4,458 tonnes of CO₂ equivalent (CO₂e) emissions, were procured p.a.

Major findings

- The largest proportion of N₂O was purchased by NSW (37%), then VIC (24%), and QLD (17%).
- CO₂e emissions from N₂O purchase varied by over three-fold per public hospital bed between different states/territories
- The mean annual N₂O procurement for one private hospital group was larger than that procured by public hospitals in the smaller states/territories, such as TAS, NT, or ACT



Figure 2. State/Territory CO₂e emissions from N₂O procurement per hospital bed, 2020

Conclusions

- Australian public hospital N₂O procurement contribute toward healthcare's carbon footprint with large variability between States/Territories adjusted by hospital beds.
- This variability demonstrates the need for appropriate policy and regulatory changes nationally to enable access to, presently not available, detailed emissions data to guide an evidence-based transition to low-carbon healthcare.
- More research is needed to investigate reasons for this variabilities and address leakage

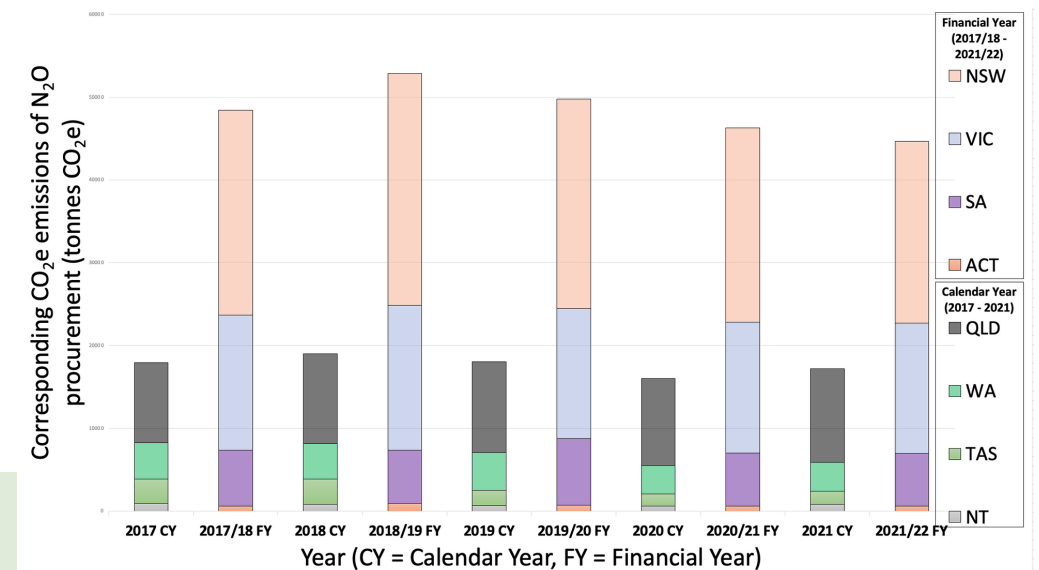
Objective

Quantify public and private medical N₂O procurement by Australian healthcare, including public dentistry and across Australian federal, state, and territory jurisdictions.

Methods

A cross-sectional analysis of N₂O procurement data for all Australian public hospitals from 01/01/2017 to 30/06/2022. Data were obtained from state and territory departments of health. Private hospital and dental data were sought but were unavailable. We sought N₂O procurement data from all state and territory department of health representatives, accounting for all 697 Australian public hospitals and four public dental hospitals.

Figure 1. Australian public hospital CO₂e emissions in tonnes arising from N₂O procurement per state and territory from 01/01/2017 to 30/06/2022



References

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