



Improving efficiency in nitrous oxide hospital supply systems to aim towards a carbon neutral NHS wales.

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Background

Nitrous oxide (N₂O) is a greenhouse gas with a global warming potential of 280 times that of carbon dioxide. This project aims to identify potential nitrous leak and reduce the waste of N₂O in Glangwili Hospital, a small district general hospital in South Wales.

Methods

British Oxygen Company (BOC) supplied us with data on how much N₂O was supplied to, and returned from, the hospital between 2021-2022. Data was collected from the anaesthetic machines over a period of three months, looking at the consumption of N₂O. A leak test of the piped nitrous system was performed during which no nitrous was used. Lastly, anaesthetists were surveyed on their practice with regards to N₂O.

Results

On average, Glangwili purchased 54,000L of N₂O per month and consumed 2109L, a usage of 3.9%. The leak test identified a leak of 1.3L/min. From the survey of local anaesthetists, 80% of respondents state they use N₂O only four times a year or less.

Conclusion

This project has identified that 96% of the N₂O purchased does not reach the patient. These findings are consistent with results from Cardiff and Vale University Health board, where a similar project was performed, and other audits across the United Kingdom. These results should encourage other health boards, including smaller hospitals, to investigate the efficiency of their N₂O supply, as significant gains could be made in our steps towards carbon neutrality.

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