



Association of Anaesthetists

Anaesthetic Gases and the rest

- [Nitrous oxide project | Association of Anaesthetists](#)
- [Joint statement on NHSE's plan to decommission desflurane by early 2024 | Association of Anaesthetists](#)



National Green Theatre Programme

Prògram Nàiseanta Lannsaireachd Uaine

Embedding sustainability into every clinical and managerial decision



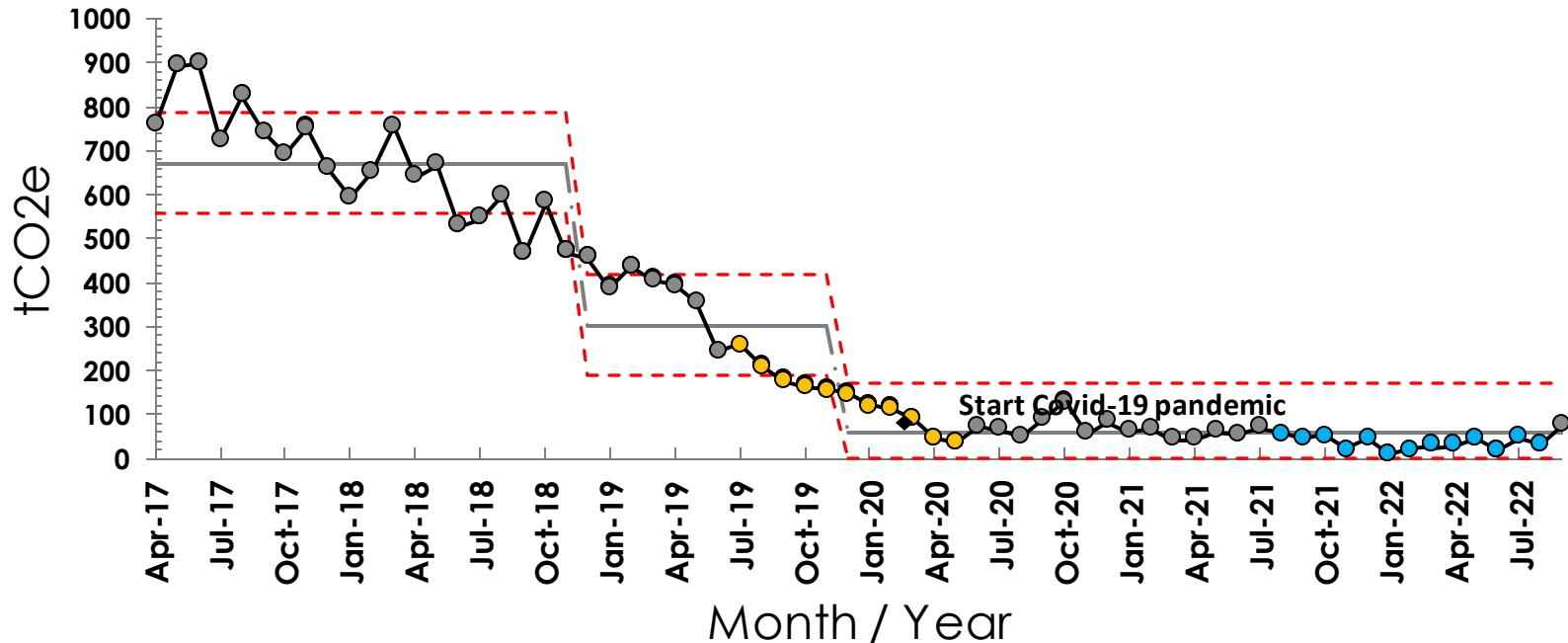
Intercollegiate Green Theatre Checklist

[green-theatre-compendium-of-evidence-rcsed.pdf](https://www.rcsed.ac.uk/green-theatre-compendium-of-evidence-rcsed.pdf)

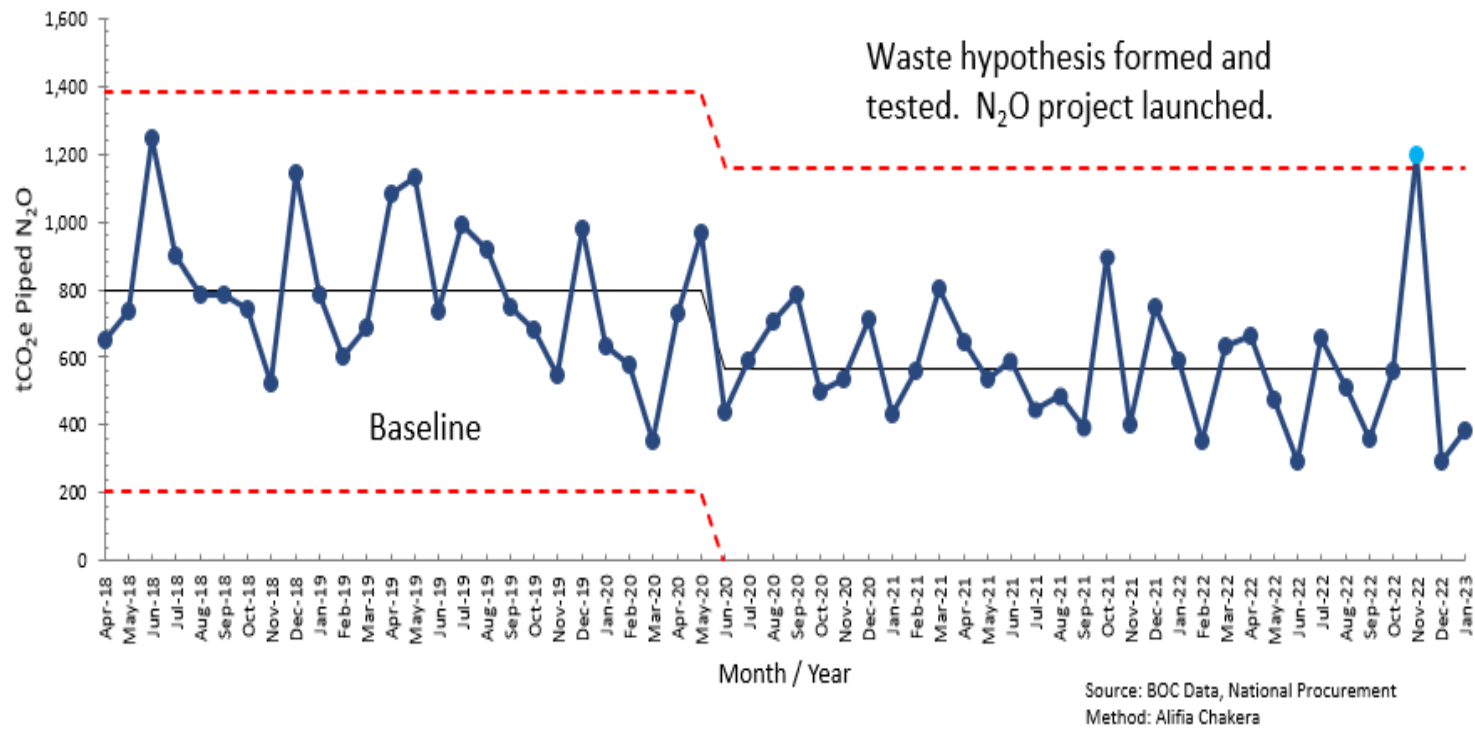
Green Surgery Report

[Green Surgery – UK Health Alliance on Climate Change](https://www.ukha.ac.uk/green-surgery-report)

Reducing tCO₂e of Desflurane in Scotland 2017-2022



NHS Scotland Reducing tCO₂e Piped N₂O



[Technical update: Anaesthetic nitrous oxide system loss mitigation and management \(scot.nhs.uk\)](https://www.scot.nhs.uk)

Guidance



Importance:

High

Health board reporting and auditing schedules:

National Sustainability Assessment Tool (NSAT)
Statutory Compliance and Risk Tool (SCART)
Environmental Management Systems (EMS) under development

External evaluation, monitoring and reporting

Scottish Government, annual climate duties reporting.
Data extracted from medical gas suppliers and attributed NHSS sites and communicated to each health board.

Centre for Sustainable Delivery: National Green Theatre Programme is now facilitating support of the nitrous oxide mitigation directive. Data is extracted from medical gas suppliers and attributed to each NHSS site on a monthly basis. High emission sites are identified and contacted by the nitrous oxide programme lead to ensure visibility of problem by health board level stakeholders.

Key documents

[Scottish Health Technical Memorandum](#) (SHTM 02-01)

[Nitrous oxide mitigation implementation plan](#)

[Manifold interim decommissioning protocol](#)

[Evidence Based Policy Report: piped nitrous oxide mitigation](#)

NHSS sites can secure their N₂O BOC data via email request to Marta.Siwiek@nhs.scot.

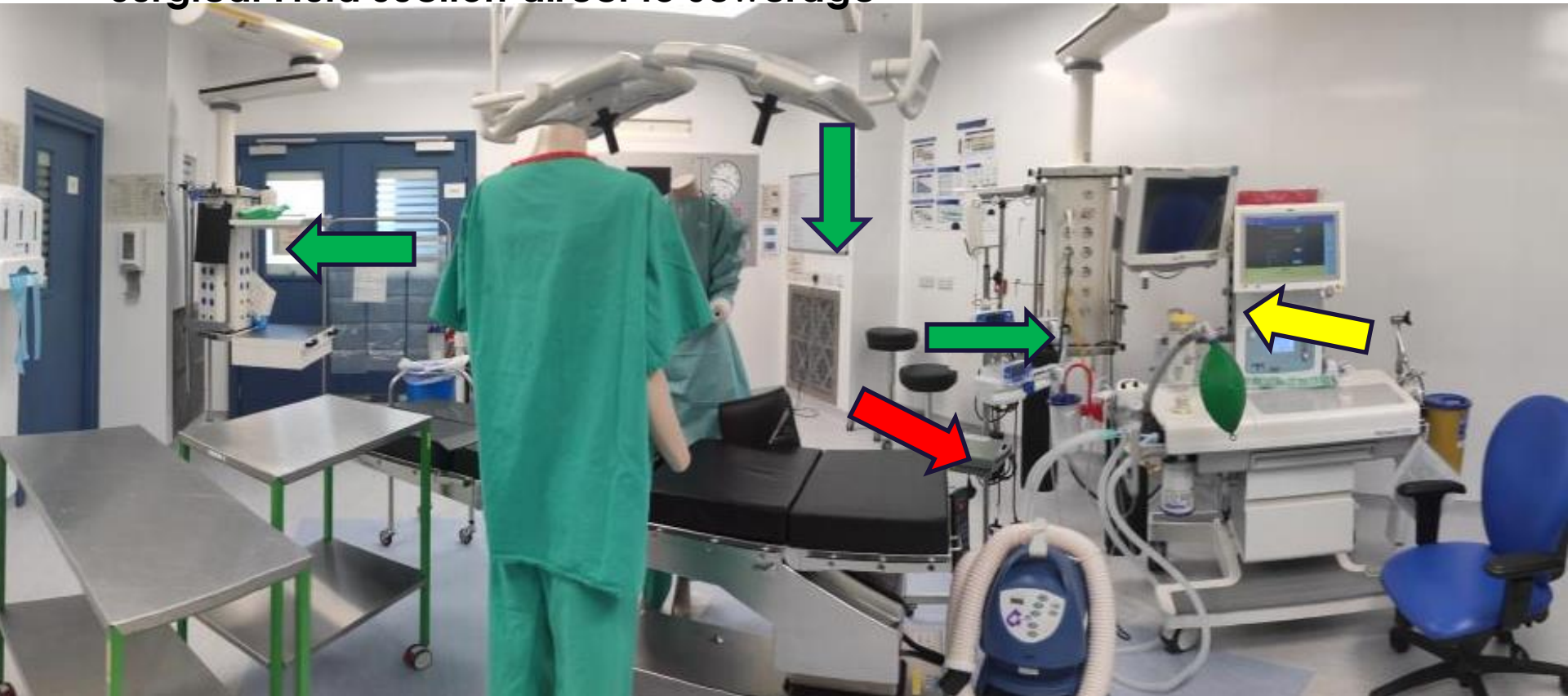
N₂O analytics dashboard under development

Position Statement

- That nitrous oxide should **no longer be considered an essential drug in modern anaesthetic practice**, and that continuous supply of nitrous oxide to theatre suites via a pipelined supply is no longer essential. We recommend that trusts **decommission their nitrous oxide manifolds as soon as possible**, switching to point-of-use cylinders where individual trusts feel that access to nitrous oxide for occasional use remains desirable. We would recommend that this transition is completed by the end of the 2026/27 financial year.

7 Bar Air
HVAC/AGSS Automation (HTM03-01)
Rationalise patient warming devices
Surgical Fluid Suction direct to sewerage

Maybe:
AGSS switch off



Plastics



Environment

Microscopic plastics could raise risk of stroke and heart attack, study says

Scientists link tiny particles in blood vessels with substantially higher risk of death

From Science Daily

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

Review

Selection for antimicrobial resistance in the plastisphere

Emily M. Stevenson^{a,b,c}, Angus Buckling^c, Matthew Cole^b, Penelope K. Lindeke^{b,c},
Aimee K. Murray^{a,*}

^a European Centre for Environment and Human Health, Environment and Sustainability Institute, University of Exeter Medical School, Faculty of Health and Life Sciences, Penryn Campus, Cornwall, UK

^b Marine Ecology & Biodiversity, Plymouth Marine Laboratory, Prospect Place, West Hoe, Plymouth PL1 3DH, UK

^c Faculty of Environment, Science and Economy, University of Exeter, Penryn Campus, Cornwall TR10 9FE, UK



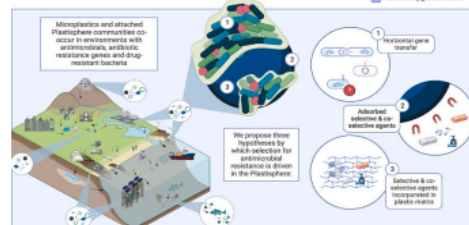
HIGHLIGHTS

- The Plastisphere refers to microbial communities that colonise plastics.
- This review highlights three mechanisms by which AMR evolution may be driven in the Plastisphere:
- Horizontal gene transfer of ARGs may increase in the Plastisphere.
- AMR selective or co-selective compounds adsorb to microplastics.
- AMR selective or co-selective chemicals are impregnated within the plastic matrix.

GRAPHICAL ABSTRACT

Selection for Antimicrobial Resistance in the Plastisphere

a.k.murray@exeter.ac.uk



PML Plymouth Marine Laboratory

Stevenson, E.M., Buckling, A., Cole, M., Lindeke, P.K., and Murray, A.K., 2023. Selection for Antimicrobial Resistance in the Plastisphere. *Science of the Total Environment*.

Back to the Future

- Refuse – “Gloves are Off”
- Alternatives to single use plastics
- Re-manufacturing of instruments
- Reusable textiles



Drugs

Modelling of hospital wastewater pollution by pharmaceuticals: first results of Mediflux study carried out in three French hospitals

J.-U. Mullot, S. Karolak, A. Fontova and Y. Levi

Table 1 | Measured concentrations ($\mu\text{g/L}$, mean \pm s.d.) for the selected pharmaceuticals in the wastewater of the three hospitals. In brackets, the ratio corresponds to the number of positive samples over the number of samples analysed. A campaign consisted in daily sampling during one week (i.e. 5 or 6 samples). Campaigns were carried out over 2–4 weeks in the three hospitals. Some samples are missing because of autosampler failure

Molecule	Hospital A	Hospital B	Hospital C
Atenolol	1.6 \pm 0.4 (5/5)	6.5 \pm 6.6 (5/5)	3.4 \pm 1.4 (16/16)
Sulfamethoxazole	0.8 \pm 0.8 (5/5)	3.0 \pm 2.4 (5/5)	4.4 \pm 1.4 (8/8)
Ciprofloxacin	12.3 \pm 4.2 (14/14)	33.5 \pm 22.3 (14/14)	14.8 \pm 5.7 (16/16)
5-Fluorouracil	0.9 \pm 1.2 (2/14)	0.4 \pm 0.5 (2/13)	0.4 \pm 0.3 (8/16)
Cyclophosphamide	0.6 \pm 0.6 (5/13)	0.8 \pm 0.6 (8/13)	0.5 \pm 0.6 (6/16)
Ifosfamide	< 0.03 (0/13)	< 0.03 (0/14)	1.0 \pm 0.3 (2/16)
Ketoprofen	1.7 \pm 1.0 (5/5)	9.3 \pm 4.1 (5/5)	17.4 \pm 8.4 (8/8)
Propofol	3.5 \pm 2.6 (5/5)	10.1 \pm 7.4 (2/5)	1.1 \pm 1.1 (7/8)
Iomeprol	1392 \pm 747 (13/14)	350 \pm 71 (2/13)	No data
Iobitridol	< 0.1 (0/14)	3213 \pm 2629 (12/13)	No data

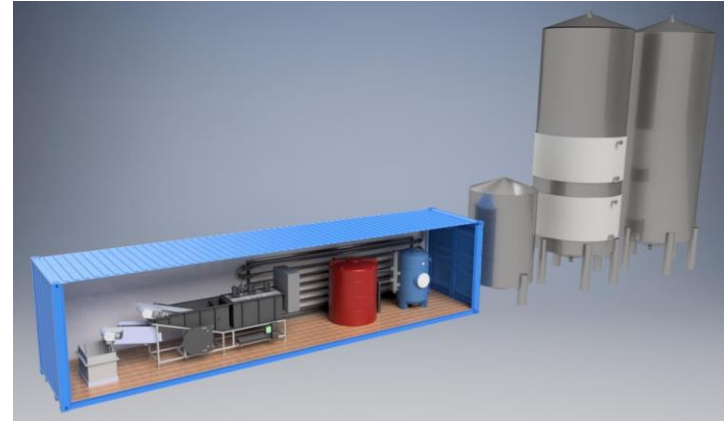
Innovation

Purewater Intl

Novus Designs / IF

Tiny Air

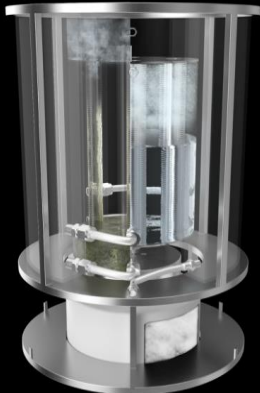
Revolution Zero





Only Novus MVCD™
purifiers work differently

These are the reasons why:
Efficient evaporative purification technology
High temperatures capture & destroy
No consumables for complete consistency

 **High temperatures capture and destroy contaminants**
The MVCD™ technology neutralises all contaminants at temperature over 100C. Our vapour distillation system continuously destroys microbial contaminants, vents Volatile Organic Compounds (VOC), and leaves heavy contaminants behind.



 **Efficient evaporative purification technology**
Novus purifiers compress evaporated water vapour through a vacuum pump. The added pressure and heat generated, then reheats the system, removing the need for a heating element. The system generates distilled water 22X more energy efficiently than traditional methods.¹

 **No consumable parts for complete consistency over time**
Novus purifiers have no consumable filters or membranes to wear out. This means there is no reduction in quality over time; there are no bacteria breeding grounds; and the system is cheaper to maintain.

¹ Based on Thermodynamic calculations with the University of Edinburgh



MDMC

Medical Device Manufacturing Centre

Success to Date

9 ACTIONS FOR IMPLEMENTATION PUBLISHED



20,442
TCO2E SAVINGS

NHS SCOTLAND **400**
COLLEAGUES ATTENDED
OUR NGTP LAUNCH



£9.7M GREEN DIVIDEND

3 ACTIONS FOR ADOPTION PUBLISHED



10 SPECIALTY DELIVERY GROUP AND PROGRAMME BOARD MEETINGS HAVE TAKEN PLACE

18 ACTIONS IN DEVELOPMENT TOWARD IMPROVING NHS SCOTLAND'S CARBON FOOTPRINT



Mòran taing Thank you



**Association
of Anaesthetists**



National Green Theatre Programme
Prògram Nàiseanta Lannsaireachd Uaine

