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Statement on decommissioning nitrous oxide medical gas pipeline systems

The Australian and New Zealand College of Anaesthetists (ANZCA), the Australian Society of Anaesthetists (ASA) and the New Zealand Society of Anaesthetists (NZSA) support:

1. Decommissioning nitrous oxide (N₂O) medical gas pipeline systems (MGPS).
2. Avoiding installation of new N₂O MGPS.
3. Utilising point of care cylinder supply where N₂O is required for clinical use.

Nitrous oxide (N₂O) is a greenhouse gas that contributes to climate change¹, and the healthcare contribution to its emissions requires urgent and decisive action. N₂O leaks in significant quantities from pressurised N₂O medical gas pipeline systems (N₂O MGPS)²⁻⁵. This leaked N₂O performs no clinical function yet still exerts a negative climate effect. ANZCA supported an amendment to the [Australasian Health Facilities Guidelines](#) in March 2025⁶, which states that N₂O MGPS are no longer mandatory for any health service.

This is in line with statements released in 2024, from organisations for anaesthetists in the United Kingdom and Ireland⁷, and the American Society of Anesthesiologists⁸, advocating for decommissioning existing N₂O MGPS and not installing N₂O MGPS in new hospitals.

In September 2025, the World Health Organization added a [qualifying statement](#) to the Emergency Medicines List to be included from 2025 onwards stating "*Piped nitrous oxide (i.e., centrally supplied systems of delivering gas through buildings) is a major source of atmospheric pollution from healthcare facilities and therefore only point-of-care cylinders are recommended.*"

This statement does not propose to impact or change clinical indications for use of N₂O. Our understanding of clinical usage patterns of N₂O has grown substantially. It is clear that operating theatres administer less N₂O than other clinical areas, notably birth suites⁹. Birth suites and *Specialist hospital groups: Women's and children's hospitals*¹⁰ are expected to have ongoing clinical demand for N₂O in significant quantities.

Currently, it is uncertain whether cylinder use of N₂O or N₂O MGPS, with rigorous attention to leakage identification and rectification, is more suitable in these high usage areas. The evidence to date consistently demonstrates that N₂O MGPS leak, and that the existing Australian Standards do not detect these leaks. We recommend that, at a minimum, these facilities undertake N₂O MGPS leakage assessment and consider full or partial decommissioning. When implementing the change from use of N₂O MGPS to cylinder supply change, relevant policy should be adhered to.

Leakage assessment of individual N₂O MGPS in Australian and New Zealand hospitals are ongoing, and internal audits and published reports have demonstrated 50-95% leakage rates⁴⁻⁵, which is in keeping with the international experience of 47-100% leakage rates²⁻³. N₂O is responsible for 20% of the Australian healthcare sector's Scope 1 emissions^{*11}: addressing this leakage by decommissioning N₂O MGPS would result in a significant decrease in Scope 1 emissions without any impact upon clinical care.

While the cost of N₂O per litre is relatively inexpensive, leakage from N₂O MGPS can result in substantial financial losses, often amounting to tens of thousands of dollars per year for a single site. N₂O MGPS also require regular maintenance, and decommissioning avoids this ongoing cost. Whilst the decommissioning process and changing to point of care cylinders has an up-front cost, organisations have reported a return on investment within two years. Avoiding the planning, installation and commissioning of N₂O MGPS will decrease associated costs in new builds³.

The Australian Interim Centre for Disease Control released guidelines for detecting and reducing leakage from N₂O MGPS in 2024¹², and several hospitals in Australia and New Zealand have decommissioned their N₂O MGPS. With current evidence neither maintenance of N₂O MGPS, nor disconnection of N₂O delivery devices at the point of clinical care, reliably resolves leakage. In contrast, healthcare sites that have decommissioned their N₂O MGPS have substantially decreased the amount of N₂O purchased, achieving both environmental and financial improvements.

Worldwide, anaesthetists are key stakeholders and leaders in efforts to address this issue, prioritising safety and patient care during this period of change. Our three organisations jointly support the decommissioning of N₂O MGPS, recommend against the installation of new N₂O MGPS, and endorse the use of point-of-care cylinders as the preferred method of N₂O delivery in Australia and New Zealand.

* Scope 1 emissions (EPA): direct greenhouse gas emissions that occur from sources that are controlled or owned by an organisation (<https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>)

The statement has also been endorsed by:



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