REVIEW

OPEN

Protecting clinician autonomy and patient safety within the climate debate: the case for desflurane in modern anaesthesia

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Purpose of review
The anaesthesia community should play a more active role in shaping sustainable healthcare practices. Current environmental measures, such as the European Commission's impending restriction on desflurane (an inhaled anaesthetic) from January 2026, risk unintended consequences for patient care and clinical autonomy.

Recent findings
While desflurane's high global warming potential (GWP) has been the central justification, GWP is an oversimplified metric that fails to reflect the transient atmospheric behaviour of short-lived gases like desflurane compared with long-lived gases like carbon dioxide (CO_2). Recent climate modelling shows desflurane's impact on global temperature is negligible, reversible, and overstated by CO_2-equivalence comparisons. Clinically, desflurane offers significant advantages, including rapid, predictable emergence, particularly beneficial for high-risk patient groups, such as elderly, obese, paediatric, neurosurgical, and cardiac patients.

Summary
Blanket restrictions undermine anaesthetists' ability to tailor care, and limit training, resilience, and preparedness in the face of drug shortages. We urge policymakers to support anaesthetic diversity and protect desflurane's availability where use is clinically justified. Sustainability efforts should focus on high-impact areas like energy use, equipment manufacturing, and waste, rather than eliminating valuable pharmacological options. Patient safety and evidence-based practice must remain central as we strive toward a more responsible, nuanced environmental approach in anaesthesia.
Visual Abstract, Supplemental digital content 1, *https://links.lww.com/COAN/A107*

Keywords
climate change, desflurane restriction/ban, drug shortages, environmental sustainability, global warming potential

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Curr Opin Anesthesiol 2026, 39:115–125

DOI:10.1097/ACO.0000000000001595

KEY POINTS

- Desflurane, an inhaled anaesthetic, faces European Union restrictions from 2026 yet remains available when medically justified, despite growing pressure for total elimination based on its high global warming potential (GWP).
- GWP is a flawed metric for evaluating anaesthetic gases; it exaggerates desflurane's climate impact by equating short-lived gases to long-lived CO_2. Intergovernmental Panel on Climate Change models show desflurane's effects on the climate are negligible and reversible.
- Desflurane offers unique clinical advantages, especially in elderly, obese, and high-risk surgical patients, because of its predictability, low metabolism, and hemodynamic stability.
- Restricting desflurane limits clinician autonomy and erodes training opportunities, reducing anaesthetists' ability to tailor care to the patient and respond to complex or specialised cases. Moreover, equipment for total intravenous anaesthesia is not always available, especially in low- or middle-income countries.
- Reducing drug options amid global supply chain instability is unsafe. Ongoing shortages of anaesthetics and essential supplies demand flexibility, not overreliance on fewer agents, particularly given the current growing geopolitical tensions.

INTRODUCTION

Healthcare settings are under increasing pressure to reduce their carbon footprint, in some cases towards achieving a target of net zero emissions [1]. From 1 January 2026, the use of desflurane (a fluorinated inhaled anaesthetic) will be restricted across the European Union [2,3], with actions for its complete removal already in place across many national healthcare settings, including the National Health Service in the UK [4–7]. These actions have led to assumptions that a blanket ban is already in place. The rationale for this guidance is its high global warming potential (GWP). GWP is an emission metric that describes the relative potency of a greenhouse gas. However, GWP has long been criticised as a decision-making tool, including by the climate scientists who devised it [8], as it is not an appropriate metric to estimate the impact of these short-lived gases compared with carbon dioxide (CO_2) [9▪▪].

Importantly, the new regulation restricts but does not ban desflurane, allowing use when '*…strictly required, and no other anaesthetic can be used on medical grounds'…* [3].

In a recent update, the European Commission clarified the restrictions [10]:

'*Starting 1 January 2026, the routine use of desflurane as anesthetic is prohibited due to its significant impact on global warming. However, doctors are still allowed to use desflurane when, in their professional judgement, other anesthetics cannot be used due to a patient's specific medical needs. In such cases, a written medical justification must be recorded and kept for 5 years (e.g., as part of the clinical records of the procedure undertaken). Doctors do not need any prior authorisation to use desflurane. Hence, these rules do not hinder the ability to act quickly in the patient's best interest and do not add significant administrative burden*'.

Essentially, desflurane can only be used if there are medical reasons why other anaesthetics are not as suitable for the patient; however, formal authorisation for its use is not required. The healthcare institution must document and keep evidence of the medical justification to provide if requested [3]. If used, desflurane should be captured with dedicated devices, like all other gases. No additional documentation beyond the patient's medical record is required; a clear note in the anaesthetic chart (e.g. 'desflurane used due to obesity', supported by the patient's BMI) is considered sufficient. Anaesthetic charts must, in any case, be retained for longer than 5 years in most countries.

Although the hurdles are not especially high, these restrictions have raised concerns among many anaesthesiologists regarding their impact on patient safety and clinical freedom of choice. They have also prompted questions about the scope of clinical exceptions for desflurane use.

OBJECTIVES

1. In this deliberately thought-provoking article, we provide information in the style of a pro-debate, with the aim of stimulating reflection on the current/future situation to generate discussion and further debate.
2. We provide a call to action to colleagues and scientific societies – to prevent restriction of anaesthetic options, especially inhalation/volatile anaesthetic (such as desflurane), particularly in the European Union, UK, Canada, and Australia [4–7].
3. We highlight the clinical benefits of desflurane over other available anaesthetic options, and outline the potential clinical exceptions for desflurane, including the patients most likely to benefit from its use.

4. We provide an overview of the scientific and environmental basis (and misconceptions) that have led to restricting desflurane.

THE CASE FOR DESFLURANE: CLINICAL BENEFITS VS. OTHER INHALATION ANAESTHETICS

Desflurane is approved in many countries, including the UK and USA, for the induction and maintenance of anaesthesia in adults, and for the maintenance of anaesthesia in paediatric patients [11,12]. Desflurane is minimally metabolised in the liver [13], meaning it is a 'soft' drug, and a good option for repeated anaesthesia in frail patients, including those with liver and lung comorbidities. Its low blood solubility means that it causes rapid induction of and emergence from anaesthesia [13]. There is a 65% reduction in the incidence of prolonged times to tracheal extubation with desflurane in comparison with sevoflurane [14▪▪]. The low blood gas solubility of desflurane also offers benefits for low/minimal flow anaesthesia [15].

Table 1. Relative clinical benefits of desflurane over, or in adjunct to, sevoflurane/isoflurane, as suggested by expert opinion and selected references

Desflurane benefits over sevoflurane	Supporting reference/ expert opinion
• In severe obese patients/high BMI	[17,18]
• When quick wake-up is required	[19,20]
• Day surgery/ambulatory patients	[21]
• Repeated exposure (hepatic toxicity of sevoflurane)	[22]
• Patient with hepatic dysfunction	[23,24▪]
• Risk of prolonged agitation with sevoflurane after surgery is reduced with desflurane	[25]
• Alzheimer's disease or patients with preoperative neurocognitive dysfunction	[26,27]
• Protective effect on glycocalyx and microcirculation	[28,29]
• Paediatric patients	[25,30,31]
• Neurosurgery	[32▪▪,33▪▪,34▪]
• Instances of prolonged sedation – in critical care in patients with organ dysfunction	[35,36▪]

New regulations regarding desflurane suggest switching to an alternative inhalation anaesthetic such as sevoflurane. Global data from 91 countries show that desflurane use has been steadily decreasing since 2014 [16]; however, there may be certain scenarios where a simple switch cannot or should not be made. Desflurane does offer some important clinical benefits over other inhalation anaesthetic options such as sevoflurane or isoflurane (Table 1). These include:

1. Faster emergence and extubation in different patient groups (obese, elderly, and paediatric) [17,30,37].
2. Predictability and reduced risk of prolonged emergence time [14▪▪].
3. Faster recovery of airway reflexes [19].
4. Shorter time to orientation of the patients' full name and date [38].
5. Quicker time to resume normal activities on the first postoperative day [21].
6. Improved cognitive recovery postneurosurgery [32▪▪].
7. Reduced risk of emergence agitation [31].
8. Viable option for repeated surgeries, to minimise drug-induced liver injury [22–24▪].
9. Haemodynamic stability [39].

TOTAL INTRAVENOUS ANAESTHESIA IS NOT ALWAYS THE SOLUTION

Some health services are trying to move away from inhalation anaesthetics altogether by utilising total intravenous anaesthesia (TIVA) for most procedures where possible [5]. There are many meta-analyses and systematic reviews on the risks and benefits of TIVA and inhalation anaesthetics, with conflicting results, which makes firm conclusions difficult [17,18,40–47]. TIVA needs specific pumps with dedicated and upgraded software for target-controlled infusion (TCI) of propofol and opioids, in particular remifentanil, which are not always available in every health centre. When administering propofol a TCI model is the most appropriate mode of delivery to minimise propofol accumulation, especially during longer procedures. While TCI of intravenous anaesthetic drugs is authorised worldwide, these devices are still not approved in the USA because of regulatory hurdles [48].

TIVA is not risk-free, and one drug is not suitable for all patients. A lack of access or availability of equipment (e.g. TCI pumps with upgraded software), concern about propofol-related infusion syndrome, reduced turnover, and risk of patient awareness may limit its use [49▪▪]. Inhalation

Table 2. Relative clinical benefits of inhalation anaesthetics over total intravenous anaesthesia as suggested by expert opinion and selected references

Inhalation anaesthetic benefits over TIVA	Supporting reference/ expert opinion
Better survival	[41,46,50–52]
Organ protection	[50,53▪▪–55]
Allows for direct monitoring of anaesthetic depth in relative terms, and may help to prevent accidental awareness	[56–60]
Protective effects on the microcirculation	[29]
Anaesthetic depth monitors may not be suited for younger children (infants and toddlers)	[61▪]
Can avoid curare	[45]
Intraoperative opioid use is increased with TIVA since it is usually coadministered with remifentanil	[58]
TCI does not have optimal management in children	[62,63]
Valuable in critical care for the management of difficult/prolonged sedation	[36▪,44,64,65]

TCI, target-controlled infusion; TIVA, total intravenous anaesthesia.

anaesthetics may offer some important clinical benefits over TIVA (Table 2). These include a reduction in mean time to extubation, time to follow commands, and variability [18,47,66]. With the use of multigas monitors with inhalation anaesthetics, the actual levels of gas in the patient can be monitored directly, which is not what a computer algorithm is calculating with propofol use. The combination of low-flow anaesthesia, automated end-tidal control, and age-adjusted minimal alveolar concentration (MAC) all improves safety as well as reduces drug usage.

Furthermore, critically ill patients requiring sedation benefit from shorter awakening and extubation times with inhalation anaesthetics vs. TIVA (e.g. propofol or midazolam). Therefore, inhaled sedation can lead to a faster return to consciousness for these patients [44]; however, in a recent study among patients with moderate-to-severe acute respiratory distress syndrome, inhaled sedation with sevoflurane did result in fewer ventilator-free days and lower survival rates [67].

Volatile agents are associated with organ protection by decreasing the reperfusion-induced inflammatory response [54], with protective effects on the microcirculation [29]. For example, myocardial protection has been observed in patients undergoing cardiac surgery with inhalation anaesthetics [50,51,68]; however, robust controlled trials are missing [41,46]. Propofol may have an increased risk of mortality [46,52] and be associated with reduced organ protection or inhibition of remote ischaemic preconditioning [53▪▪]. Current international guidelines on adult cardiac surgery suggest using volatile agents for maintenance anaesthesia during cardiac pulmonary bypass, because volatile anaesthetics can mimic the activation of myocardial protective pathways, whereas propofol might be an inhibitor [69▪]; however, a recent multicentre international survey showed that volatile agents were used routinely as the anaesthetic during cardiopulmonary bypass in only 36% sites ($n = 73$) [70]. Patients with severe hyperinflammatory conditions, such as sepsis, may also benefit from inhaled anaesthesia over TIVA, since these agents are known to have immunomodulatory effects as shown *in vitro* and *in vivo* studies [54]. In a registry-based study of over 17 000 patients with colorectal cancer, rates of postoperative complications related to wound healing and surgical infections were statistically significantly lower in the inhalation anaesthesia group vs. TIVA [42]. Although no differences were observed for any medical complications and there was no difference in 30-day mortality between the groups.

While we agree that TIVA is a good alternative for some patients, we advocate for balanced, patient-centred choices when it comes to anaesthetic selection. Each agent has specific advantages and limitations; thus, anaesthetists should aim to optimise patient care by individualising anaesthetic selection based on the specific clinical needs of each patient [54].

TIVA is not without its own environmental impact. In addition to the carbon footprint of associated equipment and single-use plastic waste [71], propofol, the most widely used TIVA, is highly toxic to aquatic organisms. Its persistence, bioaccumulation, and toxicity score are rated among the highest of drugs used in anaesthesia [54]. Although 99% of propofol is metabolised and only 1% is excreted unchanged, recent studies have shown that 14–49% of dispensed propofol is unused and disposed of as waste [72]. Proper disposal of waste propofol involves collection in special containers and incineration at 1000 °C; however, some hospitals lack secure disposal measures, which can lead to unsafe practices such as sink flushing [73,74]. Further lifecycle studies are required to establish

the actual impact of the accumulation of propofol in the environment.

GLOBAL WARMING POTENTIAL, A SIMPLE BUT MISLEADING METRIC

The environmental justification for the desflurane restriction was based on its high GWP (Table 3). A crucial flaw of the GWP is that it converts all emissions to CO_2 equivalence; however, inhalation anaesthetics cannot be simply equated to real CO_2 emissions, and by aggregating gases in this way, several important elements are missed [75]. A number of publications have further extrapolated the CO_2 equivalence with attention-grabbing comparisons of desflurane emissions, equating them to one coal-fired power plant, or 1 million passenger cars [76], with every hour of desflurane use 'equal' to 531 km car travel [77]. These are incorrect. GWP should not be used to compare short-lived gases like inhalation anaesthetics (lifespan < 20 years [78]) with CO_2 (lifespan of thousands of years) [79,80]. As a result, inappropriate emphasis has been placed on these agents [9▪▪,81,82], and policy makers may have been misled [81]. GWP ignores the actual atmospheric abundance of a greenhouse gas. It does not represent any of the physical complexity of the overall climate system, nor does it inform us about any actual global warming [83▪▪].

Recent publications have revealed that desflurane's actual impact is minuscule [9▪▪,83▪▪,84]. Using established mathematical models vetted by the Intergovernmental Panel on Climate Change (IPCC), Marin and Kleinberg [9▪▪] showed that the effect of continued desflurane emissions at the 2014 rate for the next 100 years would not result in any significant increases in global average temperatures. Rather, a steady-state atmospheric concentration of desflurane would be reached, resulting in a global mean surface temperature increase of 0.00015 °C, which is around 700 times smaller than ±0.1 °C, the natural variability of global mean surface temperature [85]. Moreover, this small effect is reversible when desflurane emissions are discontinued [9▪▪]. These behaviours are in complete contrast to CO_2 emissions, which lead to continuously increasing temperatures and remain in the atmosphere for thousands of years [84].

Using other metrics such as the global temperature change potential or radiative forcing also shows that inhalation anaesthetics make a minimal contribution to climate change that is lost within the natural variability of the climate system [83▪▪,86].

THREATS TO HEALTHCARE SYSTEM RESILIENCE: BEYOND ENVIRONMENTAL METRICS

Restricting access to desflurane undermines more than just clinical autonomy; it poses a direct threat to the resilience and adaptability of healthcare systems [87]. Modern anaesthesia depends on a diverse pharmacological toolkit that enables clinicians to individualise care across a wide spectrum of patients, procedures, and clinical scenarios. Removing a uniquely effective agent like desflurane narrows therapeutic options, places undue pressure on remaining drugs and technologies, and could potentially affect those patients for whom its use is medically indicated [88▪▪,89].

Healthcare systems worldwide are increasingly vulnerable to disruptions, whether from geopolitical tensions, pandemics, natural disasters, or supply chain failures [90]. The European Medicines Agency and US Food and Drug Administration keep live lists of medicines in short supply [91,92]. Drug shortages are linked with adverse patient clinical, economic, and humanistic outcomes [93], including increased mortality rates [94]. Anaesthetic drugs, like many pharmaceuticals, are subject to global manufacturing and distribution bottlenecks. Recent experience with shortages of propofol, sodium chloride, and even basic anaesthesia equipment has demonstrated the fragility of our supply chains. In such a context, reducing the anaesthetic armamentarium by eliminating desflurane is not a step toward resilience; it is a step away from it.

Beyond logistics, training, and crisis preparedness also suffer when essential drugs are no longer available. Future generations of anaesthetists may never learn how to use desflurane or recognise its indications and benefits in complex clinical cases. The consequence is a generation of clinicians less equipped to respond flexibly to diverse clinical needs or crises. Maintaining clinical competence in a range of anaesthetic techniques and agents is a cornerstone of preparedness, not only for routine care but also for disaster response, pandemics, and mass casualty scenarios.

Moreover, forced reliance on fewer agents increases the risk of systemic vulnerability. For instance, overdependence on propofol raises concerns in patients with propofol infusion syndrome, hepatic compromise, or situations where intravenous access is difficult. Similarly, increased reliance on sevoflurane may expose healthcare systems to challenges if its supply is disrupted or if toxicities, such as compound A nephrotoxicity or liver injury from repeated use, become more prevalent in specific populations.

Table 3. Global warming potential of inhalation anaesthetic gases[a]

Substance	GWP100[b]	GWP20	Atmospheric lifetime (years)	Atmospheric concentrations (parts per trillion)
Desflurane	2590	7020	14.1	0.37
Sevoflurane	195	702	1.9	0.16
Isoflurane	539	1930	3.5	0.11
N_2O	273	273	109	336 000
Other substances for reference				
CO_2	1	1	1000s	420 000 000
Methane	27	81.2	12	1 920 000

CO2, carbon dioxide; EU, European Union; GWP, global warming potential; IPCC, Intergovernmental Panel on Climate Change.
[a]Data from EU 2024 F-gas regulations; IPCC 6th Assessment Report 2022; US National Oceanic and Atmospheric Administration; and Archer *et al.* (2009).
[b]The GWP is a measure of how much energy a 1 ton pulse of desflurane will absorb over a subsequent period of time (typically 20 or 100 years), relative to the energy absorbed by a 1 ton pulse of CO_2 over the same period. Because the atmospheric lifetime of CO_2 is so long, the 20- or 100-year windows severely truncate its warming effect while capturing much or all of the warming effect of desflurane. Therefore, GWP greatly overestimates the warming effect of desflurane relative to that of CO_2.

Proposals advocating for a shift to single-modality anaesthetic strategies, such as exclusive TIVA or widespread locoregional techniques, ignore clinical realities. These approaches may be technically or logistically unfeasible in many institutions because of equipment limitations, staffing constraints, or patient-specific contraindications. More critically, they contradict the principles of Good Clinical Practice, which prioritise individualised, evidence-based decision-making.

Ultimately, the strength of any healthcare system lies in its flexibility; the ability to adapt to patient needs, emerging challenges, and evolving science. Desflurane's restriction is emblematic of a broader risk: that sustainability goals, if pursued without adequate clinical input or systems thinking, can erode the very adaptability that makes high-quality, safe anaesthesia possible.

CLINICIAN EXPERTISE MUST BE RETAINED

It is clear that desflurane has certain clinical advantages and benefits, particularly in selected patient groups [95]. Recently, a use for inhaled anaesthetics beyond the operating room has been proposed, not only for sedation but also for their action in managing a diverse range of disease processes in ischaemic-reperfusion injuries and for a protective role in refractory status epilepticus [96▪]. Interestingly, recent experimental research has outlined a neuroprotective role of desflurane on hypoxic ischaemic brain injury [97].

Combining the wealth of evidence with expert opinion, we have attempted to provide some clarity on the specific patient groups that may qualify as exceptions to the European Union regulations (Table 4). It is hoped this will help anaesthetic colleagues retain desflurane for use in their centres, in addition to supporting trainees. These exceptions may include fragile/elderly patients [37], obese patients [14▪▪,17,43,100,101], neurosurgical patients [32▪▪,34▪,102,103], or those at risk of neurological injuries [33▪▪], patients with Alzheimer's disease [26,27], cardiac surgery patients [50–52,70,106], paediatric patients [30,107,108] patients at risk of liver injury (e.g. related to multiple sevoflurane use) [22–24▪], and patients in long-term critical care [35,36▪,64,109–111]. These considerations justify continued efforts to maintain desflurane availability in clinical practice, which will allow the exploration of potential future advancements in patient care.

THE FUTURE OF ENVIRONMENTAL RESPONSIBILITY IN ANAESTHESIA

It is clear that reducing the carbon footprint of healthcare services is of great importance. Efforts to improve sustainability in the operating room are to be commended [72]. Taking multiple actions to reduce emissions is likely more beneficial than simply shifting to a different anaesthetic technique.

Table 4. Potential clinical exceptions for desflurane use, and the patients most likely to benefit[a]

Patient group	Rationale
Fragile/elderly patients	Between 2015 and 2050, the proportion of the world's population over 60 years is predicted to nearly double from 12 to 22% [98]. With this increasing life expectancy, it is predicted that more elderly patients will need to undergo surgery requiring general anaesthesia [37]. The predictability and reduced variability of desflurane may be beneficial for this complex patient group
Obese patients	Worldwide obesity has more than doubled since 1990, with one in eight adults now living with the condition [99]. Obesity is often associated with cardiovascular and respiratory comorbidities, diabetes, and lipid abnormalities, with a higher risk of perioperative and postoperative complications and a prolonged recovery. Desflurane provides more rapid emergence, earlier recovery, and improved postoperative outcomes in these patients [17,43,100,101]
Neurosurgical patients/ those at risk of neurological injuries	Early postoperative recovery of neurologic and cognitive functions is especially advantageous after cerebral neurosurgical procedures because it expedites the diagnosis of a life-threatening complication, and desflurane hastens wake-up for these patients [32,33▪▪,34▪,102,103]. Moreover, halogenates are feasible even in the case of intraoperative neuromonitoring, providing doses less than 0.5 fraction of end-tidal MAC [104]
Cardiac surgery patients	Rates of cardiac surgery are predicted to grow over the coming years because of an ageing population and an increased incidence of cardiovascular diseases [105]. Volatile anaesthetics, including desflurane, appear to show some degree of myocardial protection, and are associated with quicker recovery and reduced mortality [50–52,70,106]
Paediatric patients	For maintenance anaesthesia inside and outside of the operating theatre [30,107,108]
Patients in long-term critical care	Long-term critical care can be challenging because of the accumulation of benzodiazepine metabolites and propofol infusion syndrome, haemodynamic instability, and hypertriglyceridaemia [64,109]. Inhalation agents allow efficient, well-tolerated titratable sedation, particularly in cases of difficult/prolonged sedation, and may offer some lung-protective effects [35,36▪]. Desflurane can provide shorter and more predictable emergence times and quicker mental recovery vs. propofol [110], and less time-dependent effects vs. sevoflurane or isoflurane [111].
Patients at risk of liver injury	Related to multiple sevoflurane use [22–24▪].

MAC, minimal alveolar concentration.

[a]Based on available evidence and expert opinion.

Reconsidering desflurane restrictions would mean, at the same time, educating anaesthetists on low-flow anaesthesia with circle systems, minimising fresh gas flows, use of automated closed-circuit machines with end-tidal control of inhalation anaesthetics and oxygen, wide adoption of depth-of-anaesthesia monitoring, age-adjusted MAC, and gas capture systems and recycle technologies. Low/minimal flow anaesthesia minimises any climate effects, reducing waste and costs [15].

The impending European Union restriction has created an opportunity for scientists and clinicians to engage in constructive dialogue, fostering greater understanding and encouraging improvements in anaesthetic practice. It has prompted more thoughtful consideration of desflurane's appropriate indications, while advancing efforts toward more responsible and sustainable anaesthesia. Nevertheless, this comes with certain practical and operational limitations.

The restriction has disproportionately targeted desflurane, providing a useful scapegoat for emissions and distracting attention away from the main topics. Smart sustainability should target the biggest carbon contributors. Emissions in healthcare are predominantly driven by supply chain factors, such as the manufacturing of goods (e.g. chemicals and medical equipment), and by delivery of care factors (e.g. building energy, water, and waste) [112]. Specifically for anaesthesia, energy consumption in operating theatres, production and disposal of single-use medical equipment, and patient transport are key areas when considering climate impact. Addressing these would yield greater lasting sustainability benefits. Ideally, future decisions should be based on full 'cradle-to-grave'

comparative analyses or more complex models of the environmental impact, rather than simplified metrics such as the GWP. Regulation should weigh up climate impact with patient needs and safety, whilst considering the wider views of the anaesthesia community. Support of department directors will be fundamental to make daily practice more sustainable, and prompt healthcare organisations to provide more up-to-date, environmentally preferable equipment [113].

CALL TO ACTION

1. We urge policymakers to reassess the desflurane restriction in light of additional data considering measures beyond GWP, based on IPCC mathematical models showing a negligible climate impact. This would involve asking the European Council to suspend the desflurane restriction in January 2026 for at least 12–18 months, to allow for an open discussion on the issue and ultimately take the most reasonable decision based on reliable and shared data.
2. We urge scientific societies to defend the autonomy of the anaesthesia community and their freedom to choose the best way to manage patients according to the principles of 'tailored and safe anaesthesia'.
3. We urge clinicians to advocate locally and nationally to retain desflurane for justified use, particularly in vulnerable/high-risk patients. At the same time, anaesthetists should be involved as decision-makers in upgrading of anaesthesia machines and capture systems to make volatile gases more effective and sustainable.
4. We urge healthcare systems to maintain a wide range of anaesthetic options to meet diverse patient needs, reduce the risk of supply shortages, and ensure the highest standards of clinical care. Given growing geopolitical tensions, this is also important for crisis preparedness.

CONCLUSION

Desflurane has become a symbolic target in the pursuit of environmental sustainability – but this focus may be misplaced. The current evidence does not justify the broad elimination of desflurane based solely on GWP metrics, particularly when more nuanced environmental models reveal its negligible and reversible climate impact. More importantly, the removal of desflurane risks compromising patient outcomes, limiting anaesthetist autonomy, and diminishing the adaptability of healthcare systems in times of supply constraints, geopolitical tensions, or clinical complexity.

Anaesthetic choice must be guided by clinical need, not political optics. Many patient populations continue to benefit from desflurane's unique pharmacological properties, especially in contexts where rapid recovery, haemodynamic stability, or minimised hepatic metabolism are essential. Restricting its use without recognising these nuances undermines the principles of tailored, evidence-based medicine. A valuable medication with undeniably unique pharmacokinetic characteristics would be lost forever under a complete ban; a tragic prospect, given that the pipeline for new products in the field of anaesthesiology is thin to nearly empty.

Ultimately, sustainability in anaesthesia must go beyond simple substitution. A smarter, more holistic approach, focusing on low-flow techniques, gas capture technologies, and system-level efficiencies, can better serve both environmental and patient safety goals. Preserving the full anaesthetic armamentarium, including desflurane, is not an obstacle to achieve climate goals but a prerequisite for safe, adaptable, and future-ready care.

Acknowledgements

Medical writing and editorial assistance were provided by Emma East of Phase 3 Medical Communications Ltd.

Financial support and sponsorship

The medical writing for this manuscript was funded by Baxter Healthcare via an independent support grant. None of the authors were paid for contributing to this manuscript. The funders had no role in the writing of the manuscript, nor in the decision to publish the manuscript.

Conflicts of interest

P.K. has received consultation fees from TEVA Ratiopharm, Sintetica, Baxter, Amicus Clinical Development, and BBraun. P.K. has received compensation to give lectures and perform educational activities for Fresenius Kabi, CSL Vifor, Senzyme, CSL Behring, Pharmacosmos, Baxter, Pajunk, Gruenenthal, and Livanova. J.J. was a consultant Safety Physician to AstraZeneca, lectured and been part of the advisory board for Baxter, lectured for Maquette and Masimo. L.M. between 2022 and 2023 received speakers and consultancy honoraria from Baxter. Since 2023, L.M. has declined any further financial, travel-related, or other forms of direct or indirect compensation from Baxter. G.L. lectured and been part of the advisory

board for Baxter. F.R.-B. lectured and been part of the advisory board for Baxter, lectured for Norgine and Altan Laboratories. M.R. lectured and been part of the advisory board for Baxter. G.S. is the advisory board member for Baxter Healthcare. K.Z.: The Department of Anaesthesiology, Intensive Care Medicine & Pain Therapy of the University Hospital Frankfurt, Goethe University received support from B. Braun Melsungen, Melsungen (Germany), CSL Behring, Hattersheim (Germany), Fresenius Kabi, Bad Homburg (Germany), and Vifor Pharma, Munich (Germany) for the implementation of Frankfurt's Patient Blood Management program. KZ has received honoraria for participation in advisory board meetings for Haemonetics, Boston (USA) and Vifor, Munich (Germany) and received speaker fees from CSL Behring, Hattersheim (Germany), Masimo, Irvine (USA), Pharmacosmos, Copenhagen (Denmark), Boston Scientific, Düsseldorf (Germany), Salus, Bruckmühl (Germany), iSEP, Nantes (France), Edwards, Munich (Germany), Hemosonics, Asnières-sur-Seine (France) and GE Healthcare, Düsseldorf (Germany). He is the Principal Investigator of the EU-Horizon 2020 project ENVISION (Intelligent plug-and-play digital tool for real-time surveillance of COVID-19 patients and smart decision-making in Intensive Care Units) and Horizon Europe 2021 project COVend (Biomarker and AI-supported FX06 therapy to prevent progression from mild and moderate to severe stages of COVID-19). Partner for the EU Horizon 2023 project EDiHTA. KZ leads as CEO the Christoph Lohfert Foundation, Hamburg (Germany) as well as the Health, Patient Safety & PBM Foundation, Bad Homburg (Germany). For the remaining author, there are no conflicts of interest.

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