

## Why Hospitals Are Phasing Out a Popular Operating Room Anesthetic

Desflurane, which has put patients to sleep for decades, has an outsized footprint, and health care providers are switching to less-polluting alternatives.

By Emma Court – Bloomberg  
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For decades, hospitals have relied on desflurane, a popular anesthetic, to put patients to sleep on the operating table. But the chemical is a potent greenhouse gas, so regulators, health systems and hospitals around the world are moving to phase it out.

Starting this year, the EU will largely get rid of desflurane except in cases of medical necessity, following a 2023 ban by Scotland's public health-care system. Hospitals in Singapore and Australia are also moving away from desflurane, and Chinese clinicians are discussing taking similar measures.

Nearly 600 hospitals of about 1,000 surveyed in the US and Canada have stopped routine use of the anesthetic over the last decade, according to a tally by the nonprofit Practice Greenhealth.

"It was so easy compared to all the other things we've looked at over the years," says Tessa Huncke, an anesthesiologist who has been leading efforts to reduce emissions from desflurane and other polluting anesthetics at NYU Langone Health, which are expected to wrap up this year. "This is really low-hanging fruit, and it does make a big difference in the carbon footprint of the operating room."

The health-care industry has long been insulated from the climate scrutiny applied to other sectors because of its lifesaving mission. For instance, inhalers used to treat asthma and other respiratory diseases for many years received "essential use" exemptions from chemical bans, and vehicle emissions rules tend to give ambulances special treatment. But now, regulators and medical professionals are starting to zero in on hospital emissions, including those generated by the roughly \$5 billion-a-year anesthesia market.

During surgery, patients breathe in numbing gases that pass through the body and are then largely exhaled. Once released, these gases drift far beyond hospital walls, adding to planet-warming emissions.

Hospitals are switching to less-polluting alternatives, including other inhaled sedatives and intravenous anesthesia that doctors say doesn't harm care. The shift away from desflurane has contributed to a nearly 30% decrease in anesthetic greenhouse gas emissions over a decade, according to a Lancet Planetary Health study published in 2025, though it noted that desflurane use is creeping up in lower-income countries.

Baxter International Inc, a major manufacturer of the anesthetic, said that it takes environmental stewardship seriously and that choice of anesthetic agents is necessary for quality patient care.

The Deerfield, Ill.-based company pointed to two studies that conclude the climate impact of anesthetic gas emissions “is vanishingly small” and that the current rate of desflurane usage has negligible effects. One of them was co-authored by a researcher who has received funds from Baxter. The firm said those payments were nominal and for work done in previous years.

But other researchers say hospitals should be looking at desflurane’s climate effects. “It absolutely does make a difference,” says Piers Forster, a climate scientist at the University of Leeds. “The good thing about it is you get the instant benefit of reducing emissions. So it’s really worth it.”

### **An overlooked source of global warming**

Desflurane has been around since 1992, when hospital supplier Baxter introduced it in the US. Promoted for faster wake-ups, desflurane became widely adopted and a generation of anesthesiologists was trained to use it.

But around 2010, scientists started to raise alarms about the global warming potential of the drug and other inhaled anesthetics. Desflurane, for example, has 2,530 times the global warming effects of carbon dioxide over a 100-year period and heats up the atmosphere as much as 50 times more than comparable anesthetics over a 100-year timescale.

The health-care sector is responsible for about 5% of global emissions. If it were a country, it would be the world’s fifth-largest emitter. While anesthetic gases make up a tiny fraction of that, they can represent as much as 60% of an operating room’s emissions. Desflurane and another anesthetic called nitrous oxide produce emissions equivalent to driving 12 million gas cars in the US each year, one study found.

In the case of nitrous oxide, also known as laughing gas, the problem is also that it’s delivered to operating rooms via pipes, which can leak. Brian Chesebro, the medical director of environmental stewardship at the US hospital system Providence St. Joseph Health, discovered that the creaky piping systems were leaking more than 90% of the anesthesia.

“I did that math 50 times. I didn’t believe it,” he says. Research suggests that hospitals elsewhere, including in the United Kingdom and Australia, also face this problem.

NYU Langone Health, one of New York City’s largest health-care systems, has stopped buying desflurane and removed the vaporizers used to administer it in the operating

room. The hospital also stopped piping nitrous oxide into operating rooms, opting instead for small portable tanks to avoid leaks.

These are among the measures NYU Langone Health projects will cut its direct emissions by about 4% on average, and result in savings of \$300,000 a year. It's also no longer installing centrally-piped nitrous oxide at new locations, saving at least \$100,000 per location in construction costs. Other hospitals are taking similar steps.

Baxter is pushing another solution, a system that aims to capture exhaled anesthetic gas in a canister for later use. When the European Commission was looking at phasing out desflurane, the company successfully lobbied the governing body to also allow use of its technology, according to disclosures Baxter has made.

At the same time, Baxter organized a symposium last year featuring two researchers who have argued that desflurane emissions will only lead to a small amount of global warming.

"We are committed to and rely on scientific research in our efforts and encourage all stakeholders to review a balanced range of literature on this topic," Baxter said.

### **Desflurane substitutes**

Hospitals are finding that they have other, easily available options. The inhaled anesthetics sevoflurane and isoflurane are a third to 85% cheaper than desflurane, creating a financial incentive for hospitals to make the change. While they are also greenhouse gases, many hospitals are opting to keep them around because they're less harmful to the planet than desflurane.

The Netherlands, though, plans to go further. It got rid of desflurane in 2025, and is working to swap in intravenous anesthesia, which has as much as 98% lower emissions.

A team of mostly Netherlands-based researchers that reviewed how different forms of anesthesia perform concluded that intravenous can offer advantages because it results in less nausea and vomiting, says Niek Sperna Weiland, an anaesthesiologist involved in the effort who serves as scientific director for the Centre for Sustainable Healthcare at the Amsterdam University Medical Center.

"The patient experience and the quality of recovery improves," he says.