



# Removing Desflurane from St. Vincent's Medical Center:

## A Quality Improvement Project for a Sustainable Future

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### Introduction

#### Climate Change Impact:

- Healthcare is a significant contributor to global emissions.
- If the healthcare sector were a country, it would be the fifth largest emitter globally.
- In the U.S., healthcare accounts for 8.5% of national and 4.5% of global greenhouse gas emissions.

#### Operating Room Emissions:

- Desflurane is the largest source of greenhouse gases in the OR.
- One MAC-hour of desflurane equals the emissions of driving 370 km in a gas-powered car.

#### Global Warming Potential (GWP100):

- Desflurane's GWP100 is 2540, with a long atmospheric lifetime of 14 years.
- Its GWP100 is five times higher than isoflurane, ten times higher than nitrous oxide, and twenty times higher than sevoflurane.

#### Environmental and Financial Impact:

- Desflurane has a four-fold higher greenhouse gas impact compared to total intravenous anesthesia.
- Reducing or eliminating desflurane can save institutions between \$30,000 and \$100,000 annually.

#### Project Focus:

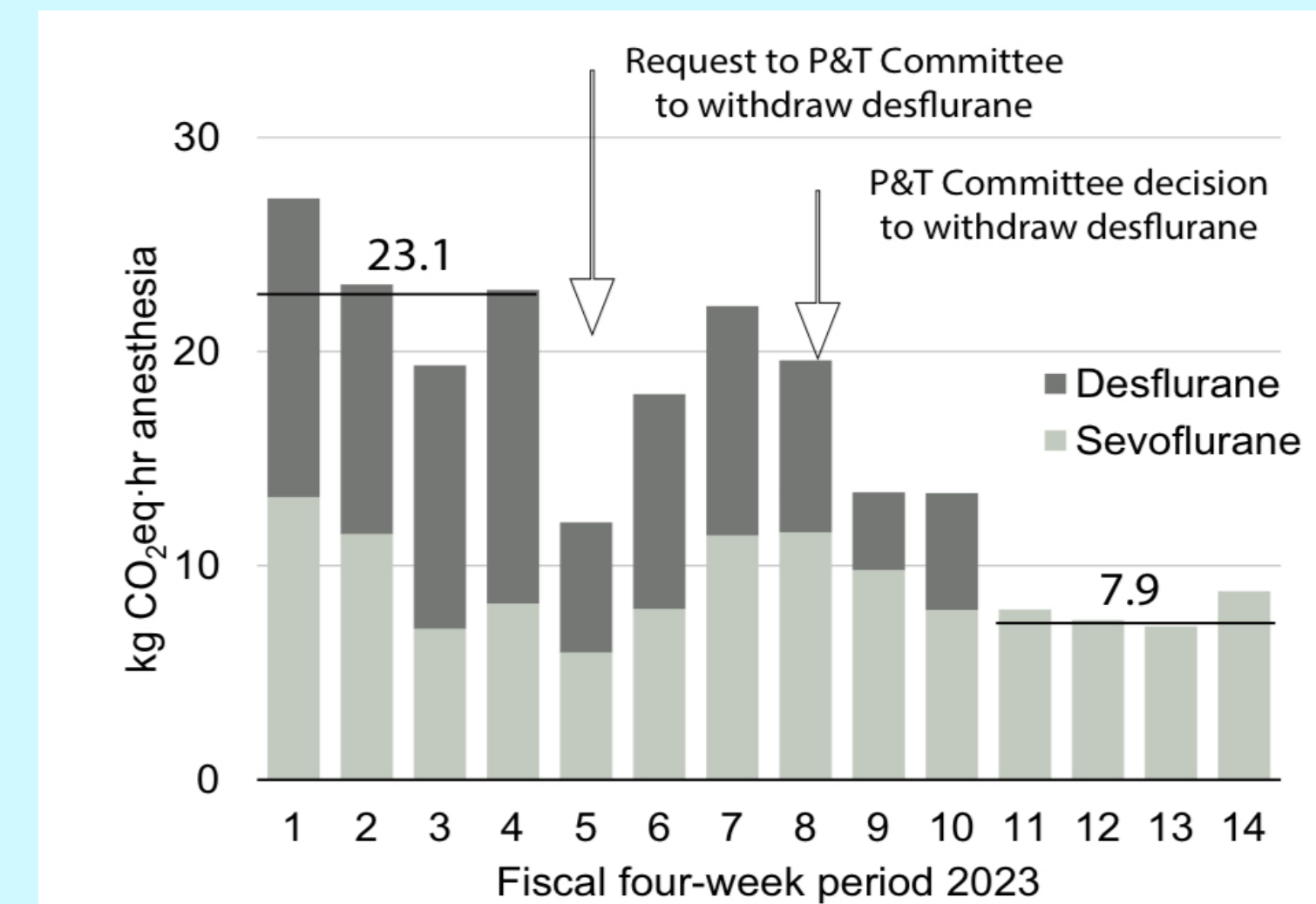
- St. Vincent's Medical Center explored desflurane usage practices and aimed to reduce both environmental and financial costs.

### Report

As the environmental impact of desflurane became evident, Integrated Anesthesia Associates led the removal of all desflurane vaporizers from St. Vincent's Medical Center on April 5, 2024. Desflurane was deemed outdated and harmful to the environment.

While the effects at SVMC are still unfolding, other institutions have reduced their anesthetic-associated carbon footprint by two-thirds, with places like Wake Forest and the University of Wisconsin saving up to \$25,000 monthly.

Despite the ban at SVMC, desflurane remains in use at other Hartford Healthcare facilities, where it has yet to be fully phased out.



### Discussion

**Clinician reluctance** is a key barrier to adopting environmentally friendly practices.

Following SVMC's successful removal of desflurane, a potent greenhouse gas, other HHC facilities are encouraged to consider similar actions.

#### Interventions to reduce volatile anesthetic use:

- Pop-up alerts** prompt providers to lower fresh gas flow.
- Education:** through lectures and newsletters to raise awareness.

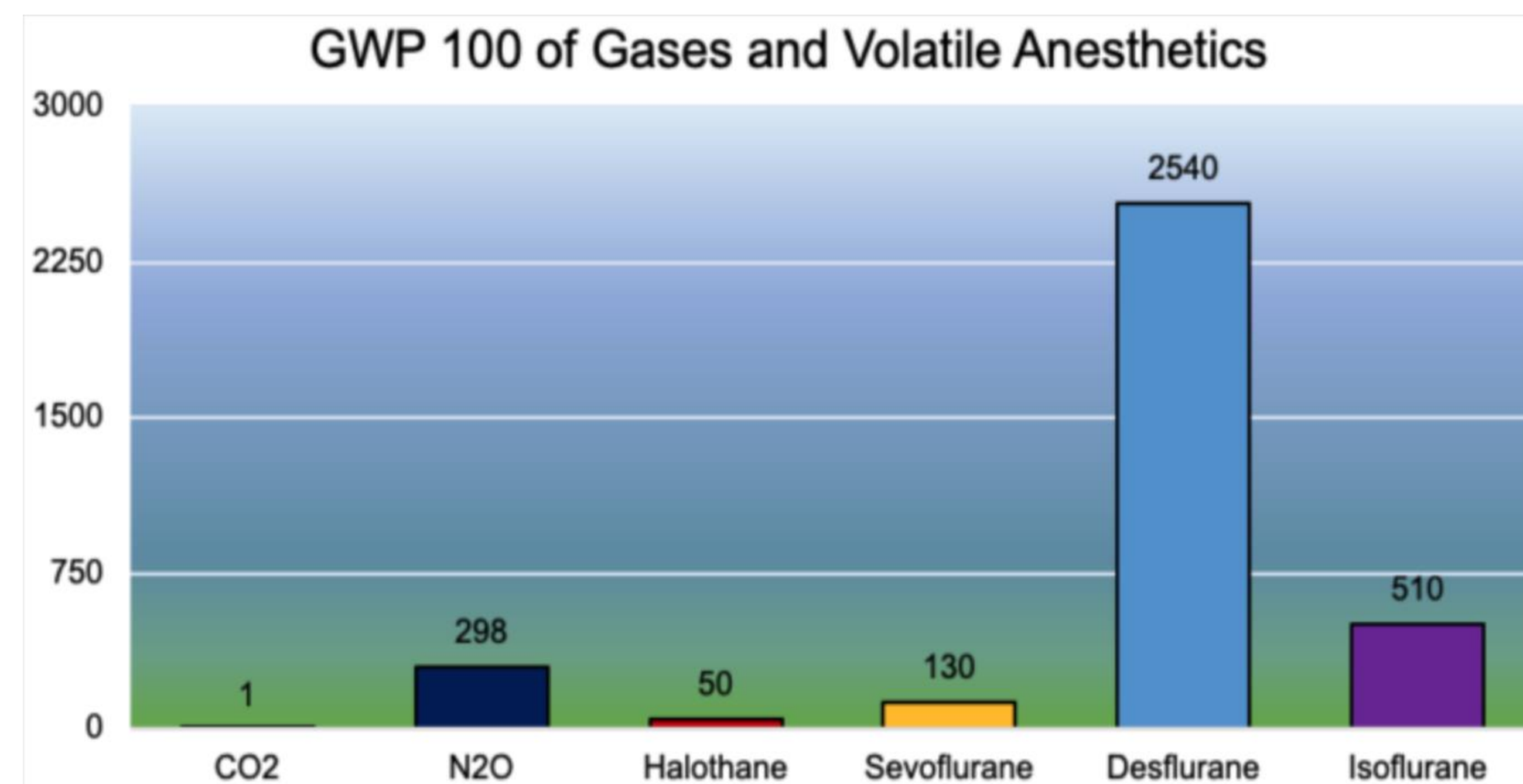
**Global trend:** More providers are removing desflurane and using eco-friendly anesthetics.

**SVMC is leading sustainability efforts within HHC, encouraging others to follow.**

**Sustainability starts in the OR,** where anesthetic choices can protect both the environment and costs.

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#### A

Volatile Anesthesia (MAC)	FGF (L / min)	CDE20 <sup>3</sup> (g / MAC-hour)	Social Cost <sup>29</sup> of Anesthetic Emissions (\$ / MAC-hour)
Sevoflurane (2%)	2	6,980	\$3
Isoflurane (1.2%)	0.5	3,881	\$2
Isoflurane (1.2%)	1	7,762	\$3
Isoflurane (1.2%)	2	15,551	\$6
Desflurane (6%)	0.5	46,796	\$20
Desflurane (6%)	1	93,593	\$39
Desflurane (6%)	2	187,186	\$78

#### B

