

Anesthesia & the Environment

It's time to choose greener gases

CLIMATE CHANGE IS THE SINGLE GREATEST RISK TO GLOBAL HEALTH

More than ever before, we have seen the devastating impact of heat waves, floods, wildfires, food insecurity, and forced displacement of people around the world. As physicians, we have a duty to advocate for the health of our environment because it directly affects the health of our patients.

WHY ANESTHESIA?

Anesthetic agents are known greenhouse gases which deplete our ozone layer and represent the largest source of emissions from the operating room.

Desflurane produces **50 times** the carbon emissions of sevoflurane

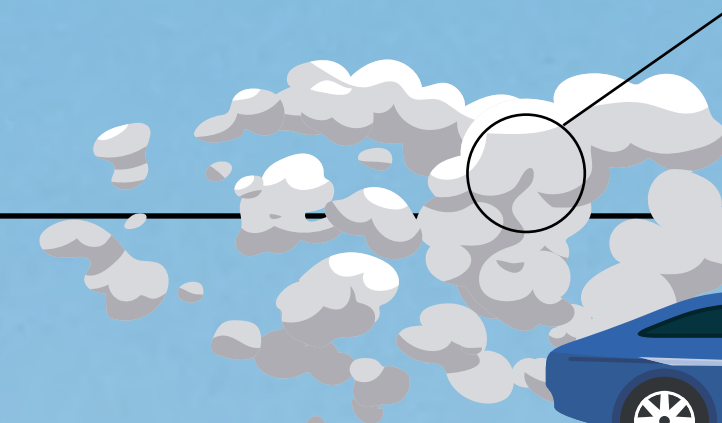
Atmospheric lifetime: 1 yr

Sevoflurane



6.5km

Desflurane



Atmospheric lifetime: 14 yrs

320km

For 1 hour of use at 1 L/min at 1 MAC.

WHY DRIVE FARTHER TO GET TO THE SAME DESTINATION?

WHAT ABOUT COST?

Sevoflurane \$ \$ \$ \$ \$ \$90-120 / 250mL

Desflurane \$ \$ \$ \$ \$ \$ \$ \$ \$ \$140-170 / 240mL

*Price ranges based on purchasing trends at the Hamilton Health Sciences, 2021

Switching to sevoflurane actually produced **savings of \$25,000/month** at the University of Wisconsin Health System

WHAT ABOUT EMERGENCE TIMES?



Studies show that desflurane generally allow patients to wake up only **1-4 minutes faster** than sevoflurane.

Operating room turnover time depends on many factors including emergence time, cleaning, and set-up.

SO WHAT CAN YOU DO?

Re-evaluate your own anesthetic agent choice in your clinical practice. The American Society of Anesthesiologists (ASA) recommends:

1. Avoiding desflurane and nitrous oxide
2. Utilizing low fresh gas flows
3. Considering TIVA and regional techniques when possible
4. Investing in waste anesthetic gas trapping or reconstituting technology

Institutions that have removed desflurane entirely from drug formulary:

1. University of Wisconsin
2. Yale-New Haven Health
3. Health Sciences North (Sudbury)

Anesthesia



Visit anesthesia.mcmaster.ca for more information, references, and resources
Design by Henry He, MD

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