



NORTH YORK GENERAL

ELIMINATING DESFLURANE TO REDUCE ANESTHESIA RELATED GREENHOUSE GAS

Issue

- Volatile halogenated anesthesia gases like desflurane and sevoflurane comprise up to 90% of the perioperative carbon footprint, and up to 5% of the greenhouse gas (GHG) emissions for a single hospital (Cascades Canada)
- Desflurane demonstrates the most significant global warming potential (GWP) which is 10 times more impactful than sevoflurane, with minimal clinical advantage

SEVOFLURANE
1 hour of desflurane use
440 GWP
3.4 years in atmosphere
50 km car journey

DESFLURANE
1 hour of desflurane use
8810 GWP
21.4 years in atmosphere
370 km car journey

Objectives

- Reduce desflurane use at North York General Hospital (NYGH) operating rooms through targeted steps and systemic changes
- Remove desflurane from anesthesia delivery units (ADUs) and pharmacy formulary at NYGH

Change Management Steps Towards the Elimination of Desflurane

- Education**: Education on environmental impact of volatile anesthesia gases (Spring 2016)
- Default**: ADU default volatile anesthetic gas changed to SEVOFLURANE (Fall 2017)
- Survey**: Anesthesia department survey on volatile gases distributed (April 2022)
- Local Policy**: Memorandum in department to limit desflurane to emergency situations only (May 2022)

Results on Volatile Anesthetic Gases

• Respondents in NYGH Department of Anesthesia participated in survey to identify reasons for using desflurane: morbidity obese patients, sevoflurane failure, faster emergence desired, no other anesthetic gas available (clinical)

• Respondents were aware of the environmental harms of desflurane

Reported Frequency of Desflurane Use

Readiness to Remove Desflurane Vaporizers from Anesthesia Gas Machines

Positive Impact

• In one year, NYGH has achieved a 67% reduction in GHG emissions associated with halogenated anesthetic gases through the reduction of desflurane use and other anesthetic gases survey launch in Spring 2022

• Overall NYGH has reduced its carbon footprint from volatile anesthesia gases by 60% or 678 MTCO2e over the last 6 years

• The elimination of desflurane across all hospitals is a key objective for Ontario's Environmental Protection Act

Monthly Count of Anesthesia Gases

Volatile Anesthesia Gas Footprint Data

Data Sources



NYGH
Environmental
Sustainability
Committee
Year in Review
2022-2023



Over the past year, North York General Hospital (NYGH) has made great strides to green our practices and reduce our environmental footprint—a key part of our Strategic Direction, *Investing in a Better Tomorrow*.

NYGH launched its inaugural Environmental Sustainability Committee in April 2023 to help plan and drive green-focused initiatives across the organization, and work in partnership with the Toronto Academic Health Science Network (TAHSN) Sustainable Health System Community of Practice. This group brings together TAHSN members to reduce and minimize greenhouse gas emissions through action, research and education.

This past year, NYGH's Environmental Sustainability Committee (ESC) organized events and information campaigns to mark environmental theme days and encourage waste reduction, environmental stewardship and green transport. The Surgery Program also led by example by introducing exciting new measures to keep plastic garment bags and disposable cups out of the landfill and green NYGH's anesthetics practices. This was on top of other ongoing measures at NYGH to conserve energy and reduce greenhouse gas emissions like using reusable linen and energy efficient lighting.

To help mark the conclusion of a very successful first year, we are excited to introduce a new name and visual identifier:

NYGreen

NYGreen will identify NYGH initiatives and projects making a positive difference for the environment and is a single concept we can all rally around in our green efforts.

Thank you to all members of the NYGH Environmental Sustainability Committee and supporting teams for your contributions throughout this year. As the following report will show, we have accomplished many great things together and look forward to continuing to make **NYGreen**!



Rudy Dahdal
VP, Planning, Redevelopment and Clinical Support
Co-Chair, NYGH Environmental Sustainability Committee



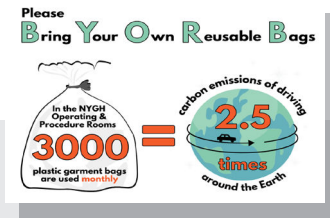
Dr. Simon Raphael
Chief Pathologist and Director of Laboratories, Department of Laboratory Medicine
Co-Chair, NYGH Environmental Sustainability Committee

NYGH's Inaugural Environmental Sustainability Committee – 2022-2023

- Rudy Dahdal, VP, Planning, Redevelopment and Clinical Support (Co-Chair)
- Dr. Simon Raphael, Chief Pathologist and Director of Laboratories, Department of Laboratory Medicine (Co-Chair)
- Alket Cuni, Director, Facilities and Support Services
- Jeff Jerome, Director, Capital Planning
- Marisa Vaglica, Director, Interprofessional Practice, Research and Education & Interim Director, Centre for Quality and Design, People-Centred Care and Care Transitions
- Steve Wolinsky, Patient Experience Partner
- Monica Lee, Clinical Pharmacist Practitioner, Pharmacy Services
- Melissa Galluzzo, Coordinator, OR Inventory, Surgery Program
- Dr. David Smith, Surgeon
- Jeremy Fingold, Registered Technologist, Diagnostic Imaging
- Melika Onat, Registered Nurse, Post Partum Unit
- Alyssa Tutay, Administrative Assistant, Surgery Program
- Thanish Munas, Manager, Facilities Management
- Kent Anjo, Senior Communications Specialist, Corporate Communications and Public Affairs
- Nina Malek, Project Manager, Capital Planning

Accomplishments in 2022/2023

Waste Reduction and Diversion



Bring Your Own Reusable Bag

NYGH's Surgery Program launched this grassroots campaign to encourage patients coming in for a procedure to bring their own reusable garment bags.


Six months after launch, **52 per cent** of scheduled surgery and endoscopy patients participated, **diverting some 1,500 bags from landfill each month.**

The campaign has since expanded to include Medical Imaging, Minor Procedures Clinic (General site), and the Minor Procedures Centre (Consumers site), **reducing the number of plastic garment bags ordered across NYGH!**



Reducing Reliance on Disposable Cups



- ✓ Scheduled surgery patients now encouraged to bring their own reusable water bottles.
- ✓ Paper cups removed at the General site cafeteria water stations.
- ✓  Reusable mugs are now available for use at all NYGH events including staff meetings and rounds.
- ✓ Tim Hortons and Starbucks now welcome patrons to bring their own reusable cups.

Composting Paper Towels



- ✓ **One tonne of paper towel diverted from the landfill** as part of a pilot project—that's almost the same weight as a small electric vehicle!



Embracing Reusable Linens



- ✓ NYGH's partnership with EcoTex Healthcare Linen Service **diverted more than 115 million** single-use gowns, drapes and wrappers from the landfill.




More than 115 million single use items diverted from landfill

Clinical Practice: Featuring NYGH's Surgery Program


Organizing for Sustainability



- ✓ The Surgery Program created a **dedicated team to champion green initiatives** at NYGH.
- ✓ The Program also began using a scorecard by the Toronto Academic Health Sciences Network to assess the current state of environmentally-friendly practices in our operating rooms. **NYGH earned top marks for Sustainability Leadership, Anesthetic Gases and Reusable Supplies!** 

Greening Anesthesia



- ✓ The Surgery Program **switched out use of Desflurane**—a general anesthetic with exceptionally high green house gas emissions—with cleaner alternatives. The team was recognized for this work with an award at a poster competition by Unity Health (pictured on cover).
- ✓ **Reusable anesthesia equipment** introduced in the OR to gradually replace single-use items. 

Energy and Infrastructure

NYGH has made great progress in saving energy and reducing our environmental footprint this past year thanks to a robust energy management program promoting energy efficient lighting, steam trap repairs and insulation jackets.



Since October 2022, NYGH has reduced overall usage in electricity, natural gas and water and **saved over 340 tonnes of greenhouse gas emissions from entering the atmosphere**—the equivalent to taking 105 passenger vehicles off the road.



This created **over \$131,000 in savings**.



Greening Health Care—a network of health care organizations including hospitals across North America—recognized NYGH for **reducing total energy consumption** at our 4000 Leslie St. administrative site and Finch Site Reactivation Care Centre by at least 5 per cent in the past year.

Transportation and Commuting

Encouraging Green Transport



- ✓ A **library of online resources** is posted on the ESC NYGHConnex page about safe cycling, biking, walking, transit and carpooling.
- ✓ NYGH **partnered with Mountain Equipment Company** to offer NYGH team members free bike tune-ups in June and July.



Education and Recognition

Promoting Green Practices



- ✓ Launched **campaigns to encourage recycling (“Waste Right!”) and energy saving (“Turn off the Lights!”)** by turning off certain lights when not in use.



Celebrating the Environment



- ✓ NYGH **recognized Earth Day, Bike Month and Waste Reduction Week** with several events including a green lunch n’ learn, a clean-up of the General site grounds, and contests with prizes that challenged team members to bring litterless lunches, use bicycles and commit to observing one green activity every day.
- ✓ **NYGH competed in UHN’s Interhospital Waste Reduction Week Survey challenge and WON with the highest participation rate!**

