

Circular Economy Consortium Update

University Health Network



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Refuse: Desflurane

Anesthetic gases, necessary in surgery, but **high global warming potential**.

Some gases are worse than others:

- Sevoflurane: 1 treatment = drive to Collingwood
- Desflurane: 1 treatment = drive to Winnipeg

Energy & Sustainability worked with Anesthesia Governing Council to remove Desflurane!

Method works for more than gas:

- **Educate** staff on difference, regularly
- Make it **less convenient**, then
- **Stop purchasing** it entirely
- **Check** to maintain

Low flows from 2 L to 0.5 L as default
-together reduced climate pollution by 56%!

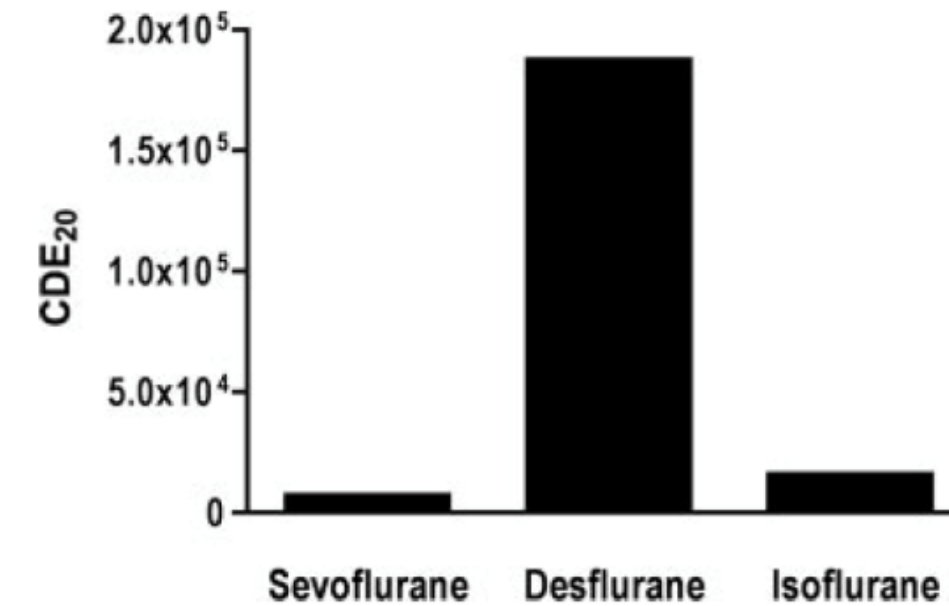
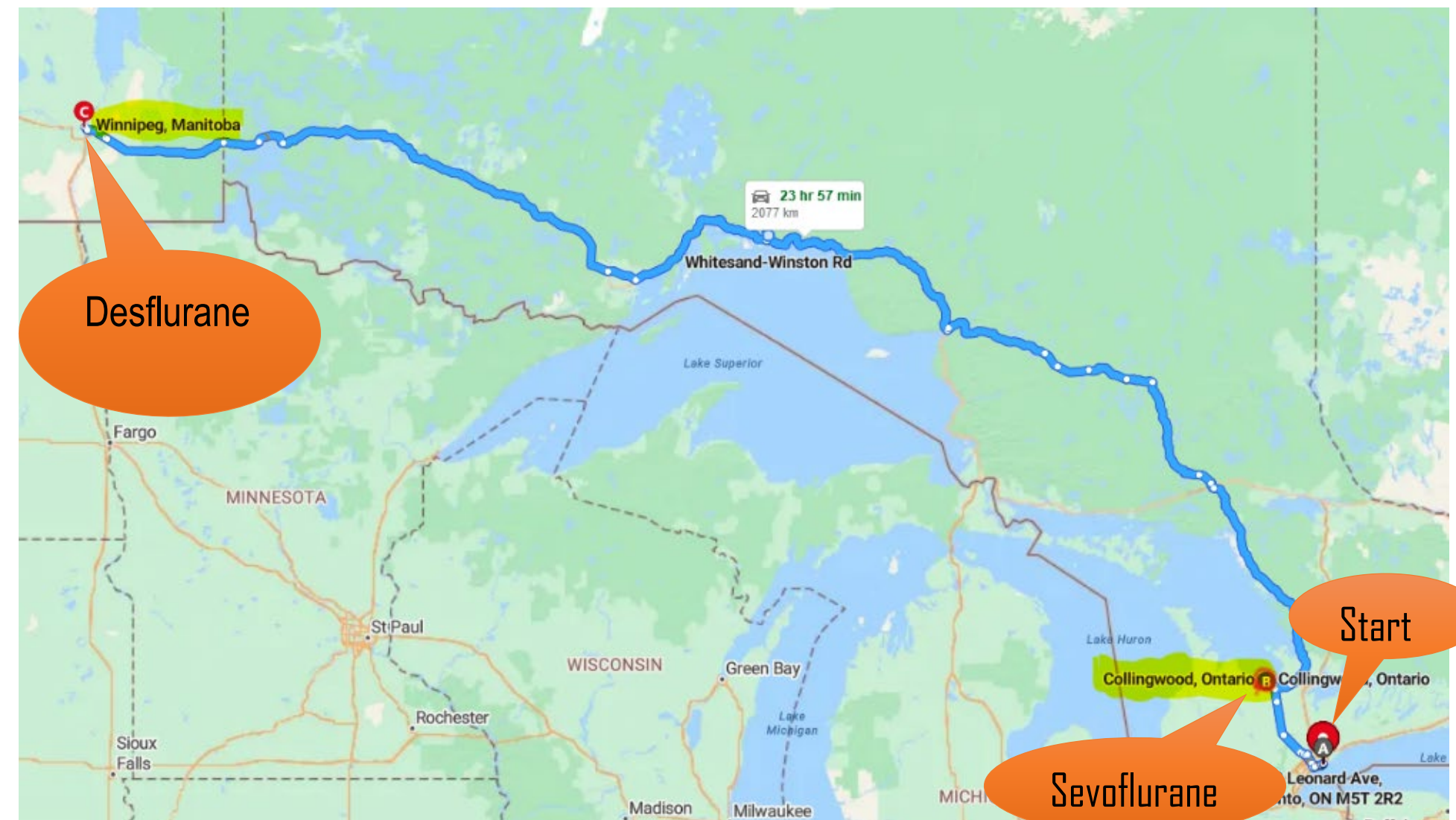
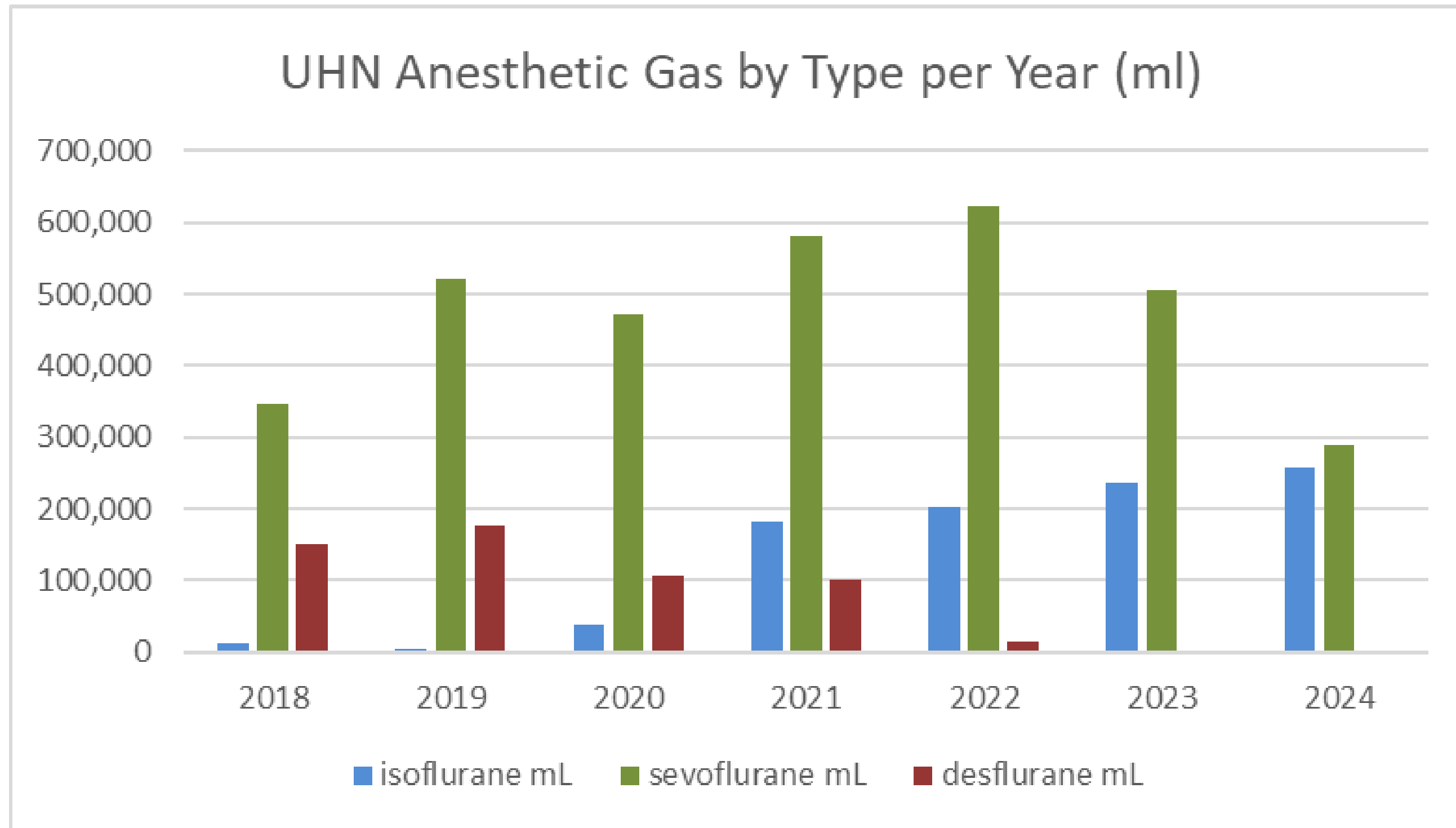


Figure 1. Relative global warming impact of 1 MAC-hour of 3 inhaled anesthetics at 2 L fresh gas flow. CDE₂₀ = 20-year carbon dioxide equivalent (in grams).



Anesthetic mix UHN 2018 - 2024



- **Desflurane gone!**
- Changes in default to lower flows = greater efficiency!
- Reduction of anesthetic gas despite no reduction in #surgeries

Reuse: Anesthesia

- Silver Knight Circuit – 7 day extended use circuit instead of disposable circuit, multiple used/day
- Pilot summer 2023,
- May 2024 = full rollout everywhere
- Cost savings: minimum \$100,000/year



Waste Less: Reduce

Wasted supplies = triple waste

- pay to dispose of &
- pay to order again
- pray the supply chain works

Glove Stewardship Program (IPAC), when to use and when NOT to

- **Worse than single-use is no use at all**

Supplies Stewardship:

- [Video only: https://videopress.com/v/jHq1VSly](https://videopress.com/v/jHq1VSly)
- Article & Video: <https://talkintrashwithuhn.com/2023/10/20/cutting-waste-and-saving-resources-at-uhn/>

— FOR AN ENVIRONMENTALLY RESPONSIBLE USE —

GLOVES



GLOVES SHOULD **ONLY** BE USED IN SPECIFIC SITUATIONS

- > Sterile procedure
- > Potential direct exposure to biological fluids (blood, vomit pus, feces, etc.), mucous membranes, non-intact skin or visibly soiled objects
- > When handling toxic or contaminated products
- > If additional contact precautions are required, or at the request Infection Prevention And Control Services
- > Bedding handling

GLOVES ARE **NOT NECESSARY** WHEN THERE IS NO RISK OF EXPOSURE TO BLOOD, BODY FLUIDS OR A CONTAMINATED ENVIRONMENT

- > Blood pressure and temperature measurement
- > Subcutaneous and intramuscular injections
- > Basic patient care, medication administration, bathing, dressing, transport, etc.
- > Exposure to tears and sweat
- > Use and handling of electronic material, electrocardiogram and oxygen
- > Food tray distribution

ENVIRONMENTAL IMPACT
564 boxes of 100 gloves emit around 2 TONS of CO₂ equivalent, comparable to a round-trip transatlantic flight.

NOTHING REPLACES HANDWASHING
Frequent handwashing is the safest measure. Hand hygiene is already mandatory after gloves removal. Wearing gloves unnecessarily can give a false sense of security while increasing the risk of transmission of infections, becoming a risk to patients and staff alike.

Reduce: Patient Bags

To stop waste before it starts:

- Message to patients to bring their own belongings bags:
- E&E worked with Quality Improvement
- Stops **4,000** plastic patient belongings bags/month!
- *If they forget, they can have a bag*

BYORB stats
Dec 2023 =
63%
brought bags!
Even better than target of 50%!

Need 80% to score for TAHSN



UNIVERSITY HEALTH NETWORK
IS GOING **GREEN!**



STARTING NOW plastic bags will no longer be provided

Each month, we use **4,000 PLASTIC BAGS** for patients having surgery at UHN.

This produces the same carbon emissions as driving 3000 km or driving from Toronto to Edmonton.

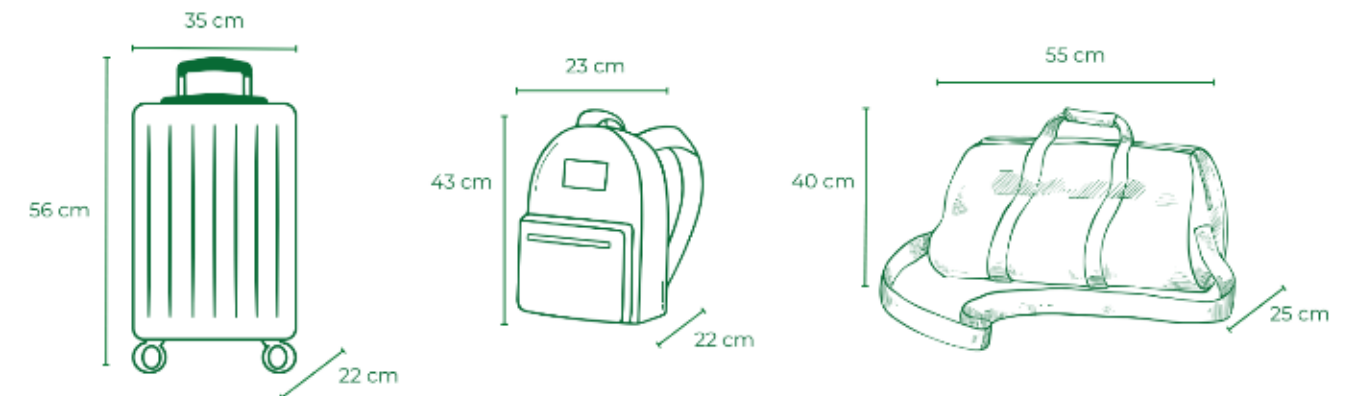
PLEASE BRING **2 REUSABLE BAGS** TO HOLD YOUR BELONGINGS DURING SURGERY.



1 small bag for your shoes, 1 large bag to hold all of your other belongings.

Bags that can be closed with a zipper are preferred to keep your belongings safe. Please see below for some examples.

Please leave your valuables - such as jewelry, watches, and credit cards - at home. The hospital is not responsible for lost or stolen items.



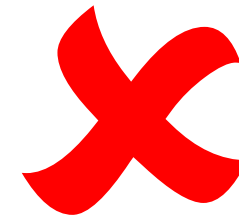
When you realize Heart and Earth are spelled with the same letters, it all starts to make sense

Waste Less: Reuse over single-use

Reusable



Disposable



Reuse = Supply Chain Protection

- Global conflicts & COVID-19 tangled supply chains, big problem if single-use
- Social/ethical issues of medical supply factories, single use

Reusable Gowns = climate win!

- UHN = 99% reusable isolation gowns = 60% cost savings
- TW = 40K surgical gown washes/year!

60 disposable VS. 1 reusable gown



Reusable Sterilization Boxes vs Disposable Blue Wrap

- UHN = now 95% reusable boxes!!!
- Shout-out: MDRD

More Reuse: Light Handles

Green-teamer
Dr. Barbara
Jemec and
the Hand
team's light-
handle
holiday tree!



UPDATE
2024:

Light
handles at
TW are now
reusable!!!

By show of hands!



I will use this green knowledge at work!

Showcasing the green pledge and engagement in furthering circular economy principles

Questions? Stay in touch

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OR GREEN TEAM

Site: TGH



Left (L to R): Vickie Morley, Nicole Maia, Jocelyne de Romana, Nicole Chambers, Lorna Button, Marcus George, Julie Yip, Carla Luzzi, Coimbatore Srinivas, Georgia Smickle, Genevieve Martel, Jennifer Perry, Laura Donahoe.

Middle: Glass medication ampules recycling station.

Right: R64 Medical Device collection bin.



What We've Done:

Reprocessing Single-use Medical Devices: We started a program with Stryker where approximately 1,000 single-use medical devices are collected and reprocessed to be used again, diverting OR waste.

Medication Ampules Recycling Program: We started a medication ampules recycling program to divert glass medication bottles from entering landfills. We ensure the metal caps are removed and the glass containers are collected.

Cautery Cord Recycling: We have started to cut the cords off cautery devices to ensure they are being recycled and diverted from landfill.

Compostable Cups Project: We traded the non-recyclable styrofoam cups in the OR and patient rooms for compostable cups to prevent thousands of styrofoam cups from entering landfills. We also continuously coach both our staff and patients on how to properly dispose of them.