
Environmental Sustainability Annual Report

2023





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Jane Harwood

Director of Surgery, Critical Care,
Cardiology, and Virtual Care
Michael Garron Hospital



Schubert Martin

Director of Engineering Services
Michael Garron Hospital

Directors' Message

“We are pleased to share with you Michael Garron Hospital’s 2023 Environmental Sustainability Annual Report, which summarizes our actions and outcomes over the past year. We would like to take this opportunity to thank MGH staff, stakeholders and community members who contributed to this success.”

Sincerely,

Jane Harwood & Schubert Martin



Introduction

Canada has joined over 120 countries – including all other G7 nations – in committing to achieve net-zero emissions by 2050. In line with this, Ontario’s Climate Change Strategy sets out the province’s vision for combating climate change and achieving a greenhouse gas emissions reduction target of 80% below 1990 levels by 2050. The Canadian healthcare system accounts for an estimated 4.6% of national greenhouse gas emissions and many hospitals are exerting efforts to reduce carbon emissions.

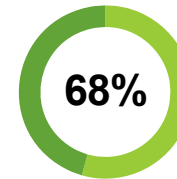
At Michael Garron Hospital (MGH), we have asked ourselves a challenging question: What more can we do in order to provide climate-cautious care? We engaged our staff and stakeholders in this discussion and also started working with the Toronto Academic Health Science Network’s (TAHSN) Sustainable Health System Community of Practice to identify and implement new environmental sustainability initiatives.

In 2023, MGH successfully implemented a significant number of environmental sustainability initiatives. We drafted a new charter for an Environmental Sustainability Committee (ESC) and are in process of selecting the ESC members. In this report, we summarize the outcomes of our initiatives.

Waste Management & Reusable Supplies

Bring Your Own Reusable Bags (BYORB)

MGH's Surgery Team kicked off this campaign in April 2023. The objective was to reduce the consumption of disposable bags and to encourage patients to bring their own reusable bags. The areas within scope of this campaign were the Main Operating Room and the Outpatient Procedure Unit.



Average compliance rate of nine months implementation (Apr – Dec 2023)



724 Round Trips



446 km/trip



* One big disposable bag: 6.92 kg CO₂, 35.2 km of driving



18,342 bags

Diverted from landfill.

*Footprint of 127,000 kg CO₂ emission that is equivalent to driving a car for 645,638 km, or 724 round trips between MGH in Toronto and Canada's Parliament in Ottawa

Water Refill Stations

To reduce the waste generated through the consumption of water bottles that can end up in landfills, and provide staff and patients with convenient access to drinking water.



4 Trips



446 km/trip



* One five-gallon Water jug: 6 kg CO₂, 30.46 km of driving



63 jugs

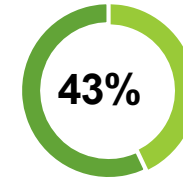
Diverted from landfill **in one month** (excluding weekends), and from **one water bottle refill station** at the Sammon Entrance.

*1 jug = 5 gallons water.

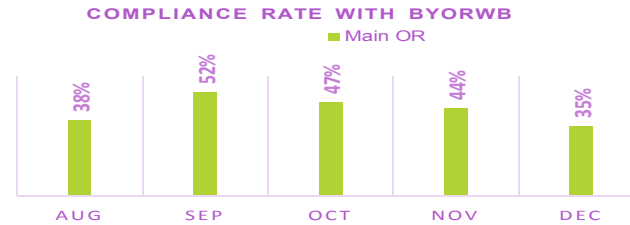
** Footprint of 378 kg CO₂ emission that is equivalent to driving a car for 1,919 km, or four trips between MGH in Toronto and Canada's Parliament in Ottawa

Bring Your Own Reusable Water Bottle (BYORWB)

MGH started this initiative in August 2023 to reduce the consumption of disposable water cups and to encourage patients to bring their own reusable water bottles. We started this initiative in the Main Operating Room and the plan is to expand to other areas.



Average compliance rate of five months implementation (Aug – Dec 2023)



Diverted from landfill

2,530 cups

Reusable Gowns & Towels

MGH provided patients with reusable gowns and towels to reduce Operating Room waste.



Single-use gowns diverted from landfill

53,388

Stryker Sustainability Project

MGH contracted Stryker, a medical technology company, to collect certain Operating Room used items that are usually discarded, and to purchase these items again from Stryker at a lower price after being re-processed and sterilized.

Through this project, MGH replaced the paid big yellow sharp containers in the Operating Room with green bins provided free of charge through Stryker. The project was implemented in August 2023.



\$33,000

Cost savings through Stryker Sustainability Project (Aug – Dec 2023)



282 lbs.

Diverted from landfill, 1,476 tins of CO2



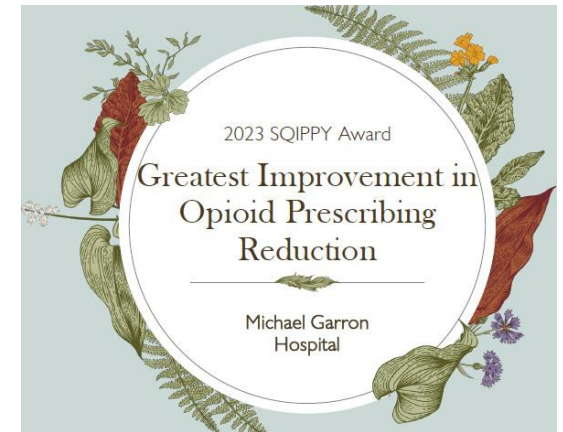
\$6,000

Annual estimated cost saving through green bins

Appropriate Care

Opioid Reduction

MGH adopted the Best Clinical Practices of prescribing opioids and is monitoring opioid prescriptions for surgical procedures to ensure the appropriate quantity is being prescribed and to avoid overprescription. In this initiative, the Surgical Quality Analyst prepares opioid data for different surgeries and shares it with Physician Leads. Each type of surgery has a different target. The target is to reduce opioid prescription where possible by 30% to 67.67% depending on the type of surgery performed.



Appropriate Pre-Operative Visits

MGH implemented a process to reduce pre-operative (pre-op) visits and tests. All patients are screened to determine if a pre-op visit is required, and to identify tests required. Pre-op tests are performed only for certain procedures and for high risk and/or symptomatic patients. The reduced assessment tests have no negative outcomes for patient care. MGH tracks metrics to ensure the appropriate pre-op process is functioning properly. These metrics include the number of laboratory tests performed and the number of delayed procedures due to missing tests.

Wise Blood Use

MGH is designated as a Using Blood Wisely hospital by Choosing Wisely Canada. To achieve this designation, MGH implemented a blood conservation program to ensure blood products are not overused or wasted. In addition, a dedicated Blood Conservation Specialist is assigned to manage this initiative. Pre-operative patients at MGH are screened to identify appropriate high-risk patients that will require blood transfusion. To ensure compliance with this program, MGH tracks the number of patients who have had a blood transfusion, and the number of blood units transfused and wasted. MGH has met or exceeded Canadian Blood Services targets for wasted red blood cells and platelets.

Lean Pathways

Antibiotic Stewardship Program

MGH has implemented an Antimicrobial Stewardship Team to monitor antimicrobial prescriptions to ensure that they are not overprescribed and patient outcomes are maximized. The team completes prospective audits and reviews feedback of all patients admitted to MGH on antibiotics. They review clinical indications, give recommendations in relation to judicious antimicrobial use and look for opportunities to narrow spectrum or reduce unnecessary use where possible. They are also involved in formulary review and order set creation/review to streamline antimicrobial selection within the hospital in accordance to best practices and resistance patterns. Through this program, we report data on a quarterly basis to the Pharmacy and Therapeutics Committee. The goal is continued reduction in antimicrobial use from baseline by 30% since program inception, 12 years ago.

Inhaled Corticosteroid Stewardship Initiative

In partnership with the Respiratory and Pharmacy Teams, we are investigating point-of-care spirometry testing and inhaler re-assessment to reduce unnecessary use of Inhaled Corticosteroids (ICS) inhalers because they have a significant carbon footprint. We continue to reassess our current inhaler formulary with both clinical best practices and climate consciousness in mind. Our target is a reduction of usage by 15%. This initiative builds on the success of a previous ICS Deprescribing Project that reduced unnecessary inhaler waste by 56% and a savings of over \$60,000 in drug costs annually.



\$60,000

Annual estimated cost savings

Protected Code Blue Kits

After assessing the streamlined usage and needs of code blue kits, MGH decommissioned the protected kits that were underutilized. Through this, the hospital standardized the code blue supply process. The decommissioning of the protected code blue kits led to the elimination of redundancies.

Reducing Drug Wastage: Lactulose

In 2023, MGH switched from ordering Lactulose plastic containers (30 mL, dollars) to sachets (15 mL, cents). Switching to the use of sachets instead of plastic containers was not only an environmentally friendly decision, but also led to cost savings.



Hard plastic containers of Lactulose ordered since April 2023

Ocean eReferral Network

Originally, the majority of outpatient referrals were faxed to MGH, and staff were then printing these papers. MGH implemented the OCEAN eReferral Network, where e-referrals replaced the printing of papers. This activity has in turn saved paper and reduced significant waste.



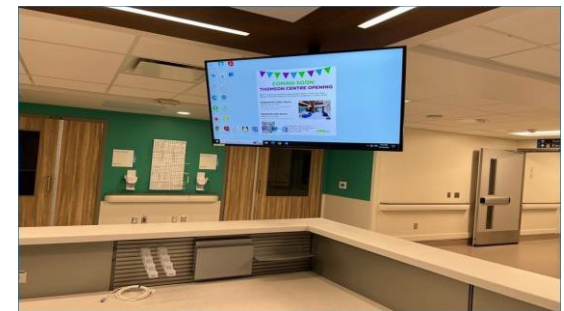
Estimated number of papers saved in 2023 due to e-referrals

Automated Dispensing Unit (ADU) Technology

Another initiative implemented in 2023 is the usage of ADU technology, which led to reducing drug wastage. MGH continues to follow up on progress and feedback with end users and has found there is more transparency and accountability through the usage of ADUs.

E-Whiteboards

In 2023, MGH installed 35 e-whiteboards in the Ken and Marilyn Thomson Patient Care Centre. This technology led to a positive environmental outcome as it replaced teams printing out daily schedules. It also created a lean pathway for communicating information.

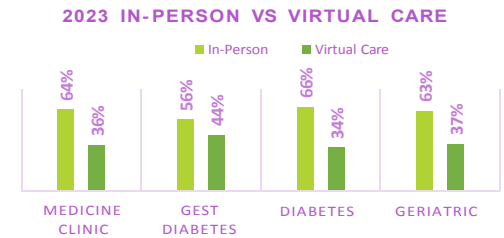


Virtual Care

Outpatient Virtual Care Services

MGH invested in Information Technology (IT) resources to ensure teams can provide virtual care services through outpatient clinics. This method of care delivery promotes energy efficiency because it reduces unnecessary travel time. MGH also offers gestational diabetes educational virtual classes, offering parents easy access to this resource without needing to source childcare or come into the hospital.

Below are examples of success in providing virtual care in 2023:



Remote Care Monitoring

Patients may receive this service after they are discharged or leave the Operating Room, Emergency Department (ED) or a Geriatrics Clinic visit. With access to this care, patients reported a decreased need to visit the ED or their family physician. MGH's target is to remotely monitor 2,100 unique patients annually.



Patients served through the Remote Care Monitoring Program in 2023

2,045

Sustainable Menus

Nourish Leadership Guidelines

MGH's Food Services Department reviews its inpatient food menus every year. The hospital follows Nourish Leadership's Sustainable Menus guidelines to decrease its carbon footprint. As part of this work, we decreased red meat options and incorporated more sustainable protein options. We also introduced the Three Sisters Soup, an Indigenous recipe which meets Nourish Leadership's guidelines for a low-carbon protein meal. Our next target involves exploring opportunities to incorporate more sustainable fish menu options.

Low-Carbon Pharmaceuticals

Desflurane Gas Elimination

Desflurane has the worst greenhouse gas emissions burden in comparison to other gases. MGH conducted a survey to gather feedback from physicians on Desflurane elimination. 87% of physicians surveyed supported eliminating Desflurane from their practice. As a result, MGH eliminated Desflurane gas from its formulary and anesthesiologists switched to using Sevoflurane, which has a lower carbon footprint.



Desflurane vaporizers ordered since May 23, 2023

Zero

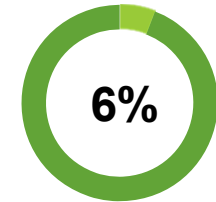
Energy & GHG Reduction

Operating Room Occupancy Scheduling

MGH implemented Honeywell Building Automation Services to decrease air exchanges during Operating Room (OR) downtimes. This creates energy savings opportunities when ORs are not being used off-hours. Our OR Occupancy Scheduling Project was the subject of a Greening Healthcare study. The MGH business case was presented and encouraged other healthcare members to review for future projects at their own sites. All energy data is collected and recorded through our Building Automation System (BAS). This data is monitored on a regular basis by Operations staff, presented at monthly team huddles and discussed at quarterly energy update meetings. Key performance indicators related to utilities consumption are presented at monthly team huddles for roundtable discussion.



Determined annual utilities savings, and a payback period to be 3.7 years



Reduction in gas below our 2018 baseline

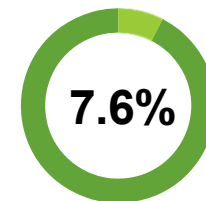
Chiller Variable Frequency Drive Project

MGH operates three 800-tonne chillers during the summer to provide cooling throughout the facility. We installed a Variable Frequency Drive (VFD) on each of these chillers to enable a slow start and reduced fan speed when these units are not required to run at 100% capacity. All energy data is collected and recorded through our Building Automation System. This data is monitored on a regular basis by Operations staff, presented at monthly team huddles, and discussed at quarterly energy update meetings. Key performance indicators related to utilities consumption are presented at monthly team huddles for roundtable discussion.



Annual reduction of kilowatt-hour (kWh) consumption

700,000 kWh



Reduction in hydro consumption

Instantaneous Hot Water Heating

MGH converted from using hot water storage tanks to an instantaneous hot water heating system in two of our largest occupant wings (G and H Zones). This project was designed to reduce unnecessary heating costs related to hot water. For each degree Fahrenheit that we were able to reduce heating, the hot water is equivalent to 15 pounds per square inch (psi) of steam saved. This instantaneous hot water heating project resulted in approximately five degrees of heating saved



Heating cost saved per year

\$9,000

Other Operational Initiatives

- **Electric Vehicle (EV) Charging Stations:** Supplied and installed 10 EV charging stations in new staff and visitor parking garages.
- **Bicycle Parking:** Opened a new bicycle parking area for MGH staff.
- **LED Lighting Retrofit:** Converted approximately 90% of building lighting to LED. Next steps for further energy reduction include reviewing occupancy sensors and timers.
- **LEED Silver:** We are working toward achieving a Leadership in Energy and Environmental Design (LEED) Silver certification for the Ken and Marilyn Thomson Patient Care Centre.
- **Ground Water Harvesting:** Repurposed ground water intrusions for efficiency improvements, irrigation and more
- **Solar Panel Feasibility Study**

MGH is an active member of the Greening Health Care Committee and the Canadian Coalition for Green Health Care. We are used in case studies to present savings opportunities to other member organizations. **In 2019, MGH received the Green Hospital of the Year Award and joined the 2020 5% Club for achieving an annual reduction of 5% or greater in greenhouse gas emissions.**

All energy data is collected and recorded through our Building Automation System. MGH operates at a target of 3% annual reduction in utilities consumption. While the opening of the Ken and Marilyn Thomson Patient Care Centre resulted in an increase in utilities consumption volumes, our utilities consumption per square foot continues to decrease through our many sustainability initiatives.

Team Training & Engagement

MGH Leadership Strategy

Team Communications & Activities

To engage hospital stakeholders on sustainability, MGH is working on integrating sustainability into training, including new employee onboarding and department-specific training. MGH will share this report and other environmental sustainability updates with staff and community through MGH communications channels, where appropriate.

Designated & Resourced Team

MGH is preparing to launch an Environmental Sustainability Committee. This new committee will evaluate and prioritize environmental sustainability initiatives, identify resources, explore funding and secure leadership approvals. We drafted a charter for the new committee and are in process of calling for members to join.

Sustainable Procurement

MGH is considering the environmental impacts of its procurement process, which includes vendor and product selection. Discussions are ongoing with vendors and stakeholders on how to reduce our carbon footprint and to adapt more sustainable options for the products we consume.


Report completed by:

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