

## Fillable 2024 Sustainable Operating Room Scorecard

Sustainability Strategies	Score			Criteria
<b>Sustainability Leadership</b>				
→ See <a href="#">The Strategy for Change</a> in the CASCADES Sustainable Perioperative Care Playbook				
1. Implement leadership structure to support perioperative environmental sustainability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Green score:</b> <ul style="list-style-type: none"> <li>Formalized Environmental Sustainability Perioperative Committee with broad representation that reports at perioperative meetings and has an executive sponsor, <b>AND</b></li> <li>Committee structure allows for protected time for clinical staff to participate in regular meetings and implementations</li> </ul> <b>Amber score:</b> <ul style="list-style-type: none"> <li>Green team of volunteers who engage in activities to improve sustainability of the OR</li> </ul>
<a href="#">Playbook Section: Green Teams</a>				
<b>Anesthetic gases</b>				
→ See <a href="#">Minimize Direct Emissions</a> in the CASCADES Sustainable Perioperative Care Playbook				
2. Eliminate desflurane for surgical procedures requiring general anesthesia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Green score:</b> <ul style="list-style-type: none"> <li>Desflurane removed from formulary, <b>OR</b></li> <li>Desflurane completely removed from operating rooms</li> </ul> <b>Amber score:</b> <ul style="list-style-type: none"> <li>Provide education on environmentally friendly gases, <b>AND</b></li> <li>Implement formal program to discourage use of desflurane, which could include:               <ul style="list-style-type: none"> <li>Carbon intensity warning stickers placed on desflurane vaporizers</li> <li>Sevoflurane is the default gas on the vaporizer</li> <li>Desflurane vaporizers removed from anesthetic machines</li> <li>Desflurane not available in operating rooms but can still be accessed from automated medication dispensing system (i.e., Omnicell, Pyxis MedStation)</li> </ul> </li> </ul>
<a href="#">Playbook Section: Desflurane</a>				
3. Use ≤0.5L/min fresh gas flow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Green score:</b> <ul style="list-style-type: none"> <li>Routine use of automated control of end-tidal inhalation anesthetic concentration programs with minimal fresh gas flows of ≤ 0.5L/min (EtControl TM on GE or Target Controlled Anesthesia on Draeger)</li> </ul> <b>Amber score:</b> <ul style="list-style-type: none"> <li>Provide education to encourage minimal fresh gas flows ≤ 0.5L/min</li> </ul>
<a href="#">Playbook Section: Use Low Flow</a>				
<b>Reusables</b>				
→ See <a href="#">Substitute Reusable Alternatives</a> in the CASCADES Sustainable Perioperative Care Playbook				
4. Establish reusable anesthesia equipment in place of single use products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Green score:</b> <ul style="list-style-type: none"> <li>Reusables used instead of single-use products for 2-3 of the following items:               <ol style="list-style-type: none"> <li>Circuit face masks</li> <li>LMAs</li> <li>Breathing circuits (or extended use circuits in lieu of reusables, for ≥ 24 hrs)</li> </ol> </li> </ul> <b>Amber score:</b> <ul style="list-style-type: none"> <li>Reusables used instead of single-use products for 1 of the above items</li> </ul>
<a href="#">Playbook Section: Reusable LMAs</a>				
<a href="#">Playbook Section: Breathing Circuits</a>				
5. Use reusable sterile surgical gowns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Green score:</b> <ul style="list-style-type: none"> <li>Routine use of reusable sterile surgical gowns</li> </ul> <b>Amber score:</b> <ul style="list-style-type: none"> <li>In the process of transitioning to sterile surgical reusable gowns, which may include:               <ul style="list-style-type: none"> <li>Removing from custom packs</li> <li>Removing from sterile core</li> <li>Developing support from operating room management/leadership</li> <li>Developing support from clinical staff</li> <li>Implementing trials of reusable gowns</li> </ul> </li> </ul>
<a href="#">Playbook Section: Reusable Gowns</a>				

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Reusables (Continued)				→ See <a href="#">Substitute Reusable Alternatives</a> in the CASCADES Sustainable Perioperative Care Playbook
6. Encourage patients to bring their own reusable belongings bags  <a href="#">Playbook Section: Garment Bags</a>	<div></div>	<div></div>	<div></div>	<p><b>Green score:</b></p> <ul style="list-style-type: none"><li>Amber criteria, <i>AND</i></li><li>Plastic patient belongings bags are provided to no more than 20% of patients</li></ul> <p><b>Amber score:</b></p> <ul style="list-style-type: none"><li>Program is in place to encourage patients to bring their own bags (through appointment communications, surgery pamphlets, and posters)</li></ul>
7. Use rigid containers or reusable linens in place of blue polypropylene wrap	<div></div>	<div></div>	<div></div>	<p><b>Green score:</b></p> <ul style="list-style-type: none"><li>Rigid containers and reusable linens are used to protect ≥ 75% of sterilized trays, <i>AND</i></li><li>Blue wrap is used only for equipment that is too irregular in shape or size to be inserted into a hard case and is unsuitable to be wrapped in reusable linens</li></ul> <p><b>Amber score:</b></p> <ul style="list-style-type: none"><li>Rigid containers and reusable linens are used to wrap ≥ 50% of trays (i.e., 50% or less of trays are wrapped in blue wrap)</li></ul>
Waste Reduction & Management				→ See <a href="#">Reduce &amp; Manage Waste</a> in the CASCADES Sustainable Perioperative Care Playbook
8. Segregate biomedical and pharmaceutical waste accurately  <a href="#">Playbook Section: Pharmaceutical Waste</a> <a href="#">Playbook Section: Biomedical Waste</a>	<div></div>	<div></div>	<div></div>	<p><b>Green score:</b></p> <ul style="list-style-type: none"><li>Education/training on proper waste segregation (pharmaceutical, biomedical and sharps), <i>AND</i></li><li>Regular waste audits (minimum once per year)</li></ul> <p><b>Amber score:</b></p> <ul style="list-style-type: none"><li>Educational signage on accurate waste segregation, <i>OR</i></li><li>Education/training on proper waste segregation (pharmaceutical, biomedical and sharps)</li></ul>
9. Lean trays and/or custom packs to include only frequently used items  <a href="#">Playbook Section: Custom Packs</a>	<div></div>	<div></div>	<div></div>	<p><b>Green score:</b></p> <ul style="list-style-type: none"><li>Amber criteria, <i>AND</i></li><li>Each surgical division has at least one lean surgical tray and/or custom pack for at least one high-volume surgical procedure</li></ul> <p><b>Amber score:</b></p> <ul style="list-style-type: none"><li>Developed process for yearly review/audit of surgical trays and/or custom packs, <i>AND</i></li><li>Developed process to make changes to trays and/or custom packs based on review</li></ul>
Facilities				→ See <a href="#">Minimize Direct Emissions</a> in the CASCADES Sustainable Perioperative Care Playbook
10. Reduce nitrous oxide use and leaks  <a href="#">Playbook Section: Nitrous Oxide</a>	<div></div>	<div></div>	<div></div>	<p><b>Green score:</b></p> <ul style="list-style-type: none"><li>Amber score, <i>AND</i></li><li>Implement the following strategies to reduce nitrous oxide use and leaks:<ul style="list-style-type: none"><li>N<sub>2</sub>O no longer used as a carrier gas</li><li>No longer using bulk N<sub>2</sub>O tank or centralized piped nitrous as a supply source (switch to cylinders at point of use)</li></ul></li></ul> <p><b>Amber score:</b></p> <ul style="list-style-type: none"><li>Provided education/training on minimizing clinical use of N<sub>2</sub>O</li><li>A strategy has been initiated to engage and seek support from key stakeholders, including clinical leads (anesthesia and obstetrics), facilities, biomedical engineering, pharmacy, and procurement. A working group may be established to determine current clinical usage and alternatives to central nitrous delivery.</li></ul>



The CASCADES Sustainable Perioperative Care Playbook provides background information and implementation resources designed to address environmental sustainability in perioperative care.

To access the full playbook, go to [cascadescanada.ca/resources/sustainable-perioperative-care-playbook/](https://cascadescanada.ca/resources/sustainable-perioperative-care-playbook/)

## Additional Sustainability Strategies

<b>Reusables</b>	<p><u>Use reusable linens</u></p> <ul style="list-style-type: none"> <li>• Use exclusively reusable drapes, where appropriate</li> <li>• Wear exclusively reusable scrub hats</li> <li>• Have a program in place that raises awareness of reusable linens and encourages their use</li> </ul> <p><u>Reuse laryngoscopes</u></p> <ul style="list-style-type: none"> <li>• Use exclusively reusable laryngoscope blades (standard, Glidescope, C-Mac)</li> </ul> <p><u>Use reusable temperature probes</u></p> <ul style="list-style-type: none"> <li>• Use exclusively reusable temperature probes</li> </ul> <p><u>Devise a reuse policy</u></p> <ul style="list-style-type: none"> <li>• Review hospital policies to ensure that items in the room (but not on the sterile field or ones that come in contact with the patient) can be returned to shelves, reused, or recycled</li> </ul>
<b>Waste</b>	<p><u>Reduce paper use</u></p> <ul style="list-style-type: none"> <li>• Reduce and, wherever possible, eliminate the printing of daily operating room lists</li> <li>• Implement electronic dashboards to support communication, and ensure that the OR lists are available electronically</li> </ul> <p><u>Use single peel pouches to decrease waste</u></p> <ul style="list-style-type: none"> <li>• When sterilizing individual instruments, use a single peel pouch to decrease waste, unless the manufacturer's instructions (IFU) differ</li> </ul> <p><u>Reduce the use of disposable pads</u></p> <ul style="list-style-type: none"> <li>• Reduce unnecessary use of disposable plastic-backed bed pads (e.g. blue pads, abd pads, etc.)</li> <li>• When an alternative is required, utilize alternatives with lower environmental footprint, such as reusable green towels</li> </ul> <p><u>Eliminate use of "bunny suits"/ white disposable polypropylene suits</u></p> <ul style="list-style-type: none"> <li>• Use reusable gowns (e.g. yellow or green surgical gowns) for visitors into the operating room (e.g. in obstetrics, guardians or care givers who accompany children for induction, non-clinical staff)</li> <li>• All hospital staff should change into OR-issued scrubs before entering the operating room</li> </ul> <p><u>Pursue re-manufacturing of single-use devices</u></p> <ul style="list-style-type: none"> <li>• Where reusable devices are not available and single-use devices are in use, collect these for remanufacturing</li> <li>• Purchase back remanufactured devices when reusable devices are not available</li> </ul> <p><u>Implement medical PVC 123 or PVC 123+ recycling program</u></p>
<b>Reduce pharmaceutical drug waste</b>	<ul style="list-style-type: none"> <li>• Use prefilled syringes whenever appropriate for medication/patient</li> <li>• Appropriately sized vials</li> <li>• Constantly monitor expiry dates and label medications that will expire soon as "use first"</li> <li>• Reuse multi-use medications until the vial is empty instead of throwing out at the end of every case (according to <u>Public Health Ontario Policy</u>)</li> <li>• Use single dose vials when possible</li> <li>• Create a program for pharmaceutical waste bins with appropriate education</li> </ul>

Additional Sustainability Strategies (Continued)	
Energy Management & Facilities	<u>Reduce energy consumption from HVAC systems</u> <ul style="list-style-type: none"><li>• Implement HVAC timer/setback system for when OR not in use</li><li>• Implement OR-specific heating/cooling system</li><li>• Implement heat reclamation system</li></ul>
	<u>Reduce energy use from operating room lights</u> <ul style="list-style-type: none"><li>• Implement LED surgical lights and LED operating room lights</li><li>• Implement 'Good Night Policy' (i.e. shut off oxygen, lights, and equipment as feasible when room is unoccupied. For lights, either implement a setback to ambient lighting or manually turn them off)</li></ul>
Low-Value Care	<u>Reduce low-value pre- and post-op visits and testing.</u> <ul style="list-style-type: none"><li>• Decision-tool to aid in consensus around necessity of specific tests in place to eliminate low-value pre- and post-op testing</li><li>• Lower-carbon test options are considered when testing is necessary</li><li>• Virtual visits are offered when appropriate</li></ul>
	<u>Reduce unnecessary blood product wastage</u> <ul style="list-style-type: none"><li>• Deliver education around wise blood use</li><li>• Transfusions only done when clinically indicated</li><li>• Stock of blood products audited to determine proper ordering frequency/volume</li><li>• Blood products are ordered in accordance with use (avoid excessive overordering; monitor expiration dates)</li></ul>

# 2024 Sustainable Operating Room Working Group

The Sustainable Health System Community of Practice developed this scorecard to assess the current state of sustainable practices in operating rooms across the Toronto Academic Health Science Network (TAHSN). The scorecard is updated annually by the Sustainable Operating Rooms Working Group, which has representation from all TAHSN organizations, and in consultation with additional experts and evidence in literature.

TAHSN Representatives	
SickKids	<ul style="list-style-type: none"><li>• Dr. Elaine Ng, Staff Anesthesiologist; Co-chair, Perioperative Care Unit Green Committee; Director of Education, Department of Anesthesia and Pain Medicine</li><li>• Cameron Irani, RN, MN</li></ul>
Humber River Hospital	<ul style="list-style-type: none"><li>• Jhanvi Solanki, RN, MN, Vice President, Clinical Programs</li></ul>
Michael Garron Hospital	<ul style="list-style-type: none"><li>• Dr. Tenille Ragoonanan, Anesthesiologist; Perioperative Team Champion for Sustainability</li><li>• Wissam Halimeh, Quality Manager</li></ul>
North York General Hospital	<ul style="list-style-type: none"><li>• Dr. Melissa Ho, Anesthesiologist; Co-lead Perioperative Sustainability</li></ul>
Scarborough Health Network	<ul style="list-style-type: none"><li>• Dr. Kim-Chi Tran, Urologist</li></ul>
Sinai Health	<ul style="list-style-type: none"><li>• Dr. Soniya Sharma, Anesthesiologist</li></ul>
Sunnybrook Health Sciences Centre	<ul style="list-style-type: none"><li>• Dr. Martin Van der Vyver, Anesthesiologist; Co-Chair, Green OR Task Force</li><li>• Barbara McArthur, Patient Care Manager; Co-Chair, Green OR Task Force</li></ul>
Trillium Health Partners	<ul style="list-style-type: none"><li>• Dr. Anita Rao, Anesthesiologist (Working Group Chair); Physician Lead of Environmental Sustainability</li><li>• Dr. Munir Jamal, Head, Division of Urology</li></ul>
Unity Health Toronto	<ul style="list-style-type: none"><li>• Laurie Thomas, Senior Clinical Director of Surgery</li><li>• Dr. Sarah Ward, Orthopaedic Surgeon, St. Michael's Hospital</li><li>• Dr. Ali Abbass, Anesthesiologist; Chief of Environmental Stewardship and Sustainability, St. Joseph's Hospital</li></ul>
University Health Network	<ul style="list-style-type: none"><li>• Dr. Laura Donahoe, Thoracic &amp; Lung Transplant Surgeon; Operating Room Green Team Lead, Toronto General Hospital</li></ul>
Women's College Hospital	<ul style="list-style-type: none"><li>• Dr. Karen Devon, Endocrine and Thyroid Surgeon</li></ul>
Department of Surgery, University of Toronto	<ul style="list-style-type: none"><li>• Emily Pearsall, Manager, Best Practice in Surgery</li></ul>
Secretariat	
Collaborative Centre for Climate, Health & Sustainable Care	<ul style="list-style-type: none"><li>• Fiona Miller, Professor, Institute of Health Policy, Management and Evaluation, Dalla Lana School of Public Health; Director, Collaborative Centre for Climate, Health &amp; Sustainable Care, University of Toronto</li><li>• Brittany Maguire, Managing Director, Collaborative Centre for Climate, Health &amp; Sustainable Care, University of Toronto</li></ul>

## Notes