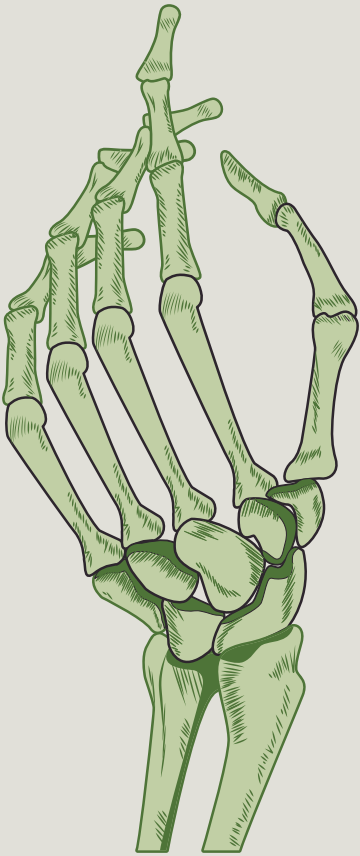


SUSTAINABLE HEALTHCARE: AN IMPLEMENTATION GUIDE FOR RHEUMATOLOGISTS





PURPOSE AND SCOPE

Planetary Health is a multidisciplinary solutions-oriented approach to analyzing the impact of human activity on the environment. Ultimately, it is about addressing how the health of the planet affects our own human health.

The healthcare industry is responsible for approximately 4-5% of greenhouse gases (GHGs) worldwide and in Canada, **our healthcare carbon footprint is higher than the aviation industry.** As physicians and healthcare workers, we are in a trusted position to bring a scientific and social lens to these issues as we witness the direct and indirect impacts of the changing climate on health. Some of us have seen patients experience respiratory exacerbations during wildfire season while others have helped flood-evacuated patients navigate their chronic disease management.

This toolkit is a call to action for rheumatologists worldwide to implement sustainable healthcare solutions. While some of us are hospital-affiliated, many of us are working in clinics either on our own or in teams. We see patients, we purchase supplies, we keep the lights on - which is why we are uniquely positioned to implement changes within our spheres of influence.

Tennison I et al. (2021). Health care's response to climate change: a carbon footprint assessment of the NHS in England. *Lancet Planetary Health*, 5(2): E83-E92.

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HEALTH CARE AND THE CLIMATE CRISIS



WHY IS THIS IMPORTANT?

The global pandemic has taught us that we can focus the attention of the health care system on a clear purpose when there is a looming threat. Climate action is required from all sectors of the economy including health care. This effort is crucial in order to achieve the net-zero carbon emissions goal by 2050, which was established by the Canadian government. In addition, building climate resilience among health care institutions and their supply chains is urgently needed as they are already being impacted by a changing climate.

New accreditation standards for governing boards and leaders as well as federal, provincial and local regulations, are requiring senior leaders to consider environmental stewardship in their strategic plans. This will affect enterprise risk management plans, capital investment plans, procurement policies and practices, and budgeting. In the future, recruitment and retention of young professionals will depend on the alignment of organizational priorities and commitments to shared values of social and environmental justice.

HEALTH CARE CONTRIBUTES 5% OF THE GREENHOUSE GAS (GHG) EMISSIONS IN CANADA, WHICH IS HIGHER THAN THE AIRLINE INDUSTRY.

Health care governing boards, management, *and clinical staff* all play a key role that extends beyond the boundaries of their organizations. As highly respected leaders, their actions can positively influence staff, patients, visitors, suppliers, and entire communities. There is a high level of public contact and interaction with the health care system; therefore, the system itself should provide an exemplary commitment to environmental stewardship.

The influence that health care can have in reducing emissions by others is significant.

HEALTH CARE SHOULD CARE ABOUT PEOPLE AND THE PLANET.

REWARDS AND RISKS FOR ACTING NOW

REWARDS



- Leadership in your local community
- Positive staff culture and engagement
- Decisions made now will lock you into your future net-zero pathways (ie. PPE contracts)
- Secure access to medical product supply chain with a focus on reusables
- Increase in infrastructure resilience

ABILITY TO MEET NEW STANDARDS



- New carbon reduction regulations
- An imperative to adapt to climate change (now) and build resilience (for the future)
- Over 120 countries have committed to net-zero emissions by 2050

FISCAL RISKS

- Increased spending on office supplies, clinic overhead, insurance
- Climate inaction can demoralize staff, leading to decreased efficiency



HEALTH SYSTEM RISKS

- Needing to respond to a climate emergency in:
 - Facility services
 - Health services

ACTION ITEMS



LEADERSHIP

- Create a Sustainability Strategy for office ●
- Appoint a leadership person for sustainability ●

This section contains some of the action items that have the greatest impact in reducing the facilities' carbon footprint. This list also includes the **expected cost** to help choose between items. Some of these items will be a real challenge!

CAPITAL COST

- Savings, or no cost
- 💰 Small cost
- 💰💰 Medium cost
- 💰💰💰 Large cost



EDUCATION

- Incorporate planetary health into medical school and residency curriculum and Continuing Medical Education (CME) events ●
- Provide quality care in the fewest steps ●
 - Unnecessary testing whether for investigations or monitoring results in carbon footprint beyond the tests themselves including patient transport to/from facility and sample processing
 - Utilize tools such as Choosing Wisely: <https://choosingwiselycanada.org/recommendation/rheumatology/>
- Opt out of paper communications for promotional materials ●
 - Only 25% of eligible paper and 9% of plastics in Canada are recycled



MEDICATIONS AND THEIR ADMINISTRATION

- Deprescribe with shared decision-making with patients ●
 - Sustainable prescribing is done to decrease unnecessary medications, errors, interactions, and side effects. It is also important because pharmaceutical production, shipping and disposal release a significant amount of GHGs
 - Additional benefits to patients are cost savings and improved patient safety
- Reduce single use or unnecessary materials in medication administration 💰
 - Medications range from oral to subcutaneous to IV and all have manufacturing, production, shipping, storage, administration, and disposal processes
 - Liaise with pharmacies and industry partners on patient education for safe disposal of medications
- PVC plastic recycling, i.e., fluid bags, suction tubing, oxygen masks 💰
 - Polyvinyl chloride (PVC) is a widely used plastic within healthcare and can account for approximately sizable portion (some estimate 1/3 of hospital's general waste) which then gets sent to the landfill. These plastics can be recycled and can be effectively sorted at the user level i.e. infusion centres, day medicine units, etc.
- Reusable sharp containers program or equivalent 💰
 - Traditional sharps (needles, etc) in sharps containers are autoclaved or in some cases, incinerated which generates significant GHGs and other pollutants. The reusable containers can be emptied and sterilized by the company, and then reused in the facility, resulting in significant financial and environmental savings



SUPPLY CHAIN

- Streamline PPE use** 💰
 - During the COVID-19 pandemic, it was identified that some PPE could be safely reused. There are now Health Canada-approved reusable masks that can be laundered. Reusable items can reduce purchasing and disposal costs for clinics resulting in significant cost savings.
 - Determine if gloves and gowns are necessary vs. hand hygiene
- Clinic uses reusable patient gowns and linens** 💰
 - Reusable patient gowns and linens are as safe as single-use items.
- Phase out examination table paper rolls** ●
 - If surfaces need to be decontaminated, consider alcohol- or bleach-based solutions with washable cloths. Paper rolls are commonly used but do not meet IPAC standards. Incorporate a single patient education poster similar to hotels encouraging towel reuse as efficient communication to patients
- Separate biohazard vs. non-hazardous waste at clinics and infusion centres** ●
 - Since biohazardous waste is incinerated before going to the landfill, avoid having regular, non-hazardous waste binned together with biohazard waste as it will result in unnecessarily incineration, higher emission, and higher disposal costs to the facility. By having easily identifiable sorting system at the user level, biohazardous vs. regular waste can be appropriately processed
- Procurement contracts contain weighting for sustainability of 10% and higher**
 - The supply chain represents over 65% of health care's carbon footprint. Clinics and hospitals work with procurement organizations or decide on suppliers for their clinical needs. If "sustainability" is part of the scoring, suppliers are motivated to develop sustainable products, compatible with a circular economy
 - Advocate for green products with suppliers



PATIENT CARE

- Encourage physical activity, exercise prescribing, nature prescribing** ●
 - Physicians can prescribe Parks Canada, Canadian Nature of Museum and Toronto Zoo passes for eligible patients while addressing health inequity and access to nature <https://www.parkprescriptions.ca/>



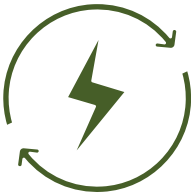
FOOD

- Encourage healthy plant-based or plant-rich diets for patients while recognizing cultural diversity and supply chain distances travelled** ●
 - Patients with rheumatic diseases often ask about diet options. An example of Mediterranean diet has demonstrated cardiovascular benefits while being relatively environmentally-friendly
- Facility uses composting to manage food waste** ●
 - Facility participates in onsite food waste composting, or in a municipal food waste collection and composting program. Composting decreases the amount of GHGs released by food waste.
- Reduce food waste in meetings and conferences** ●
 - Reduce waste and GHG emissions throughout supply chain by ordering plant-rich/based meals and reducing single use plastics
 - When planning events, consideration of attendance volumes as well as creating partnership with local charities or food banks to safely make use of unused foods



TRANSPORTATION

- Utilize virtual care when appropriate** 💰
 - Reduce travel-related carbon-footprint, resources and time for patients and caregivers in appropriate clinical contexts while recognizing the importance of in person physical examinations in rheumatology care
- Advocate for public transport infrastructure so that this option is timely, affordable, and realistic** 💰💰💰
- Facility has a secure area to store bikes, or other accommodations that encourage bike riding** 💰
- Advocate for dedicated carpooling or EV charging spaces** 💰💰💰
 - Car travel by staff and visitors is a contributor to GHG emissions within health care. Therefore, encouraging carpooling can decrease environmental impact.



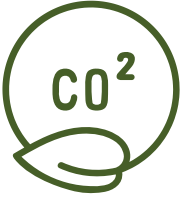
BUILDINGS AND ENERGY

- Heating, Ventilation and Air Conditioning (HVAC) Systems are energy efficient** 💰💰💰
 - Having building managers upgrade to energy-efficient HVAC systems, using ground, air or water sources heat pumps, using wind or solar to generate electricity can further reduce GHGs
- Over 90% of the facility has been converted to LED lighting** 💰💰
 - Replacing old light fixtures with modern energy-efficient LED fixtures can significantly reduce energy expenditures.
- Facility, or proposed new build, is [LEED Gold standard](#) or higher** 💰💰💰
 - New builds operate with minimal GHG emissions.
- Periodic energy audits and follow through with advice given** 💰
 - An energy audit reduces carbon footprint by finding problem areas in your building that are wasting energy. Reducing energy consumption will also save money on your energy bill.




NATURE-BASED SOLUTIONS

- The facility has 25% green cover including green roof, food gardens, tree canopy, pollinator gardens and natural grass (except lawns)** 💰💰
 - Plants absorb CO2 and reduce heat island effect. They provide beauty and evidence suggests plants lead to improved patient outcomes.



PERSONAL CHOICES

- Reduce purchases in everyday life**
 - Manufacturing and shipping results in significant emissions. Reducing purchases, being mindful of supply chain, adopting a repair or replace philosophy can have an additive effect

- Purchase carbon credits** 
 - Consider offsetting travel or daily carbon footprints through validated channels

- Divest from fossil fuels to low-carbon funds for banking or investments**

GLOSSARY

Accreditation Standards - Accreditation Canada surveys health care facilities to rate them on the extent to which they meet national standards for quality and facility operations. New Standards regarding environmental stewardship are being implemented for healthcare facilities

Circular Economy - A systematic approach to economic development designed to benefit business, society and the environment. It moves beyond recycling to keeping products in use, eliminating waste streams and regenerating natural systems.

Divesting funds - By moving money from standard portfolios to low-carbon portfolios, significant greenhouse gases are saved.

Greenhouse Gas (GHG) Emissions - GHGs are made up of carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and fluorinated greenhouse gases (F-GHGs).

HVAC Systems - Heating, Ventilation and Air Conditioning (HVAC) systems that generate much of a facilities' GHG emissions.

Nature-based solutions- Implementing sustainable designs and natural features into the built environment to promote adaptation and resilience. These solutions would include natural grasses, pollinator gardens, rain gardens, trees and green roofs.

Net-zero - Achieving a balance between the greenhouse gas emissions put into the atmosphere and those taken out. CO₂ emissions make up over 80% of GHGs and can be broken down into Scope 1 direct emissions (i.e. heating and cooling), Scope 2 indirect emissions (i.e purchased from utilities), and Scope 3 emissions generated from the operations of the company (i.e. supply chain, travel). In order to prevent the worst climate damages, global net human-caused emissions of carbon dioxide (CO₂) need to fall by about 45 percent from 2010 levels by 2030, reaching net-zero around 2050.

Sustainable Prescribing - This involves optimizing medications for patients, typically resulting in less medications prescribed. Also, in some cases, prescribers can switch from one medication to another one which produces less GHGs. For example, switching inhalers.

Sustainable Procurement - Building environmental sustainability factors into the rating system for the acquisition through purchase or lease of real property, goods or other products, works or services.

ORGANIZATIONS WITH KEY RESOURCES

LEADERSHIP

- Leadership strategy - <https://cascadescanada.ca/resources/all-topics/organizational-readiness/organizational-readiness-playbook/>
- Divesting from fossil fuels, investing in green energy - <https://www.shiftaction.ca>
- Elements of a green facility - <https://www.peachhealthontario.com/ideal-green-hospital>

EDUCATION

- Choosing Wisely Canada - <https://choosingwiselycanada.org/recommendation/rheumatology/>
- Calculating your footprint - <https://healthcareclimateaction.org/checkup>

SUPPLY CHAIN

- Procurement contracts - <https://sustainabilityadvantage.com/sp/case/>
- Reusable gowns - <https://journals.sagepub.com/doi/full/10.1177/01410768211001583>
- Circular economy for medical PPE - <https://greenhealthcare.ca/manufacturingandretail/ppe-msup/>
- PVC recycling - <https://www.vinylinstituteofcanada.com/medical-pvc-recycling-pilot-program-pvc-123/>
- Reusable sharps container - <https://bcgreencare.ca/reusable-sharps-container-implementation-is-expanding-across-fraser-health/>
- Examinable table paper roll - <https://www.cfp.ca/content/66/10/748.long>

BUILDINGS AND ENERGY

- New buildings - <https://www.cagbc.org> (see 'zero-carbon')
- Energy manager, heating systems, and LED lights - <https://practicegreenhealth.org/topics/energy/energy>

MEDICATIONS

- Deprescribing strategy - <https://www.deprescribingnetwork.ca/>
- Medication safety <https://ismpcanada.ca/consulting/>

FOOD

- Plant forward diets - <https://www.nourishleadership.ca/sustainable-menus>
- Composting - <https://greenhealthcare.ca/wp-content/uploads/2017/07/CCGHC-Organic-Waste-Case-Study-June17-2013-FINAL.pdf>
- Sourcing locally - https://www.greenbeltfund.ca/halton_healthcare_knowing_your_power

TRANSPORT

- Active Transport - <https://cape.ca/resource/active-travel-toolkit-en/>
- EV chargers - <https://chasecanada.org/wp-content/uploads/2021/03/ZEV-BACKGROUNDER-ENG.pdf>

NATURAL SYSTEMS

- Green space - <https://bcgreencare.ca/wp-content/uploads/2021/10/Green-Design-for-Climate-Resilience-and-Well-being.pdf>

PERSONAL CHOICES

- Carbon Credit - <https://marketplace.goldstandard.org/collections/projects>

MORE KEY GREEN ORGANIZATIONS

- <https://synergiesanteenvironnement.org>
- <https://nordicshc.org/>

CONTRIBUTORS

This guidebook was adapted from "ENVIRONMENTAL STEWARDSHIP: AN IMPLEMENTATION GUIDE FOR BOARDS, EXECUTIVE LEADERS, AND CLINICAL STAFF" by Neil Ritchie (NR), Myles Sergeant (MS), Curtis Lavoie (CL), Kim-Chi Tran (KT), Richard Webster (RW), Sujane Kandasamy (SK1), Luz Paczka Giorgi (LG) and Linda Varangu (LV).

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We welcome your comments and suggestions.

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