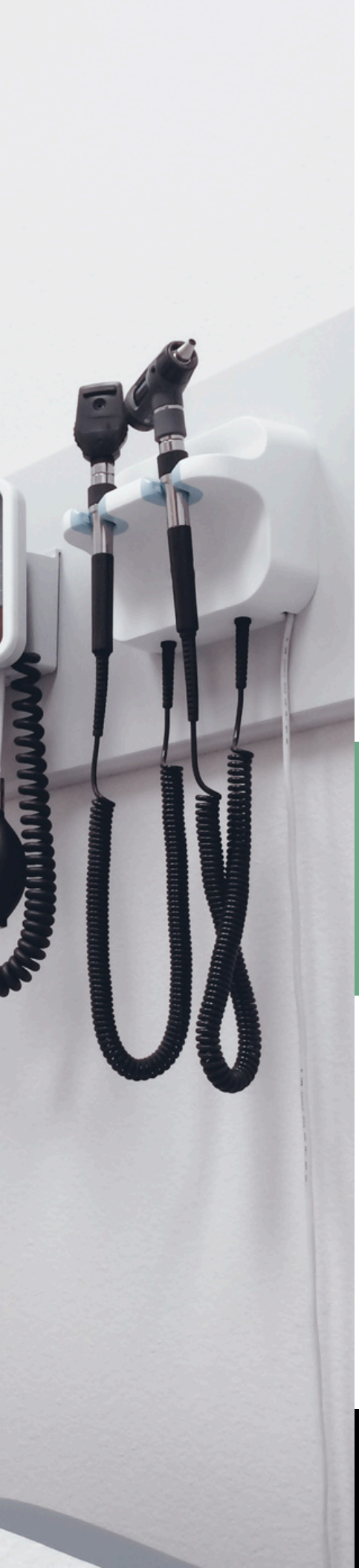

The Canadian Coalition for Green Health Care
Coalition canadienne pour un système de santé écologique

GREEN OFFICE TOOLKIT

FOR CLINICIANS AND OFFICE MANAGERS

2023 EDITION

ACME CAPE

PEGASUS INSTITUTE

McMaster University Family Medicine

SYNERGIE SANTÉ ENVIRONNEMENT

PEACH

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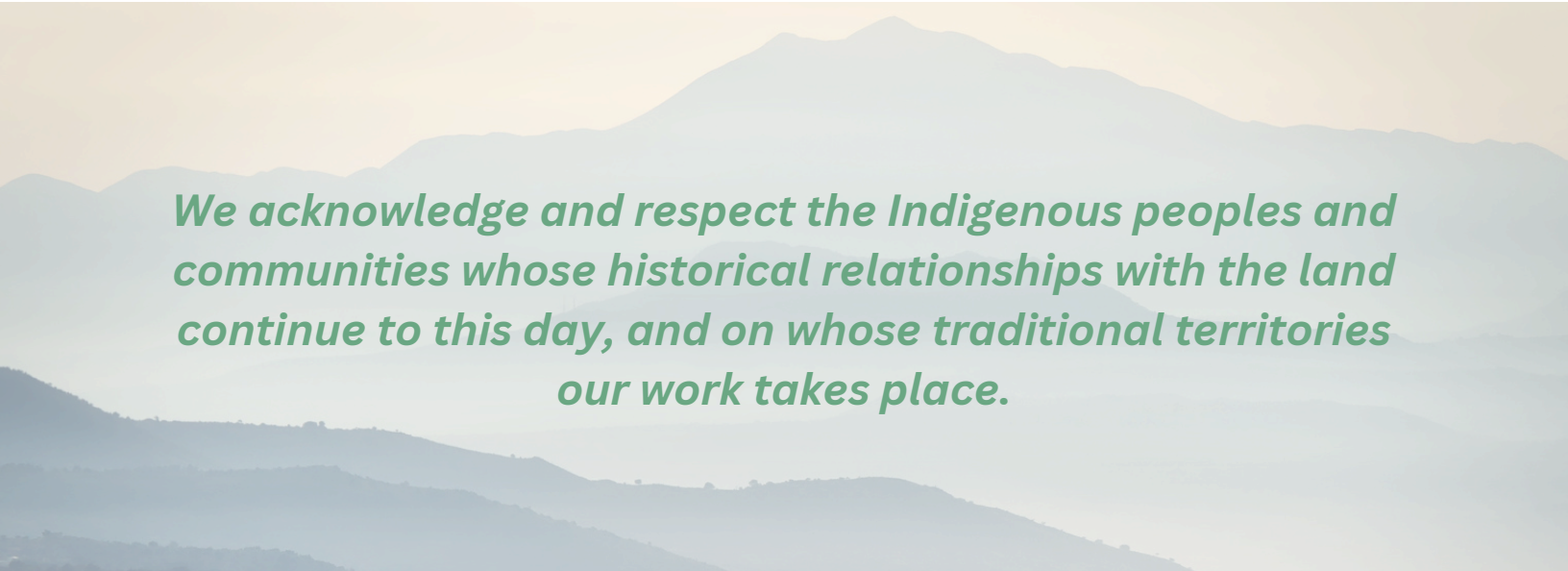
This toolkit is inspired by the first version of the Green Office Toolkit (published online in 2018)



We acknowledge and respect the Indigenous peoples and communities whose historical relationships with the land continue to this day, and on whose traditional territories our work takes place.

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A BRIEF HISTORY OF THE TOOLKIT

It gives me a great deal of pleasure to share this most recent version of the Toolkit, with contributions of a broad cross-section of people from across the country but we must remember that, in a minor way, we are standing on the shoulders of giants.

The genesis of this toolkit came out of a tiny Crescent BC family medicine office a couple of hundred metres from the Pacific Ocean. Inspired by the award-winning changes developed by Dr. Charles King and his wife Wendy Wulff I felt a need to go beyond working on a City Environmental Committee to actions in my clinical and personal life.

Soon I was inspired by Dr. Jean Zigby who was making radical changes such as making tiny tiny waste baskets, one fifth the size of the regular blue recycling bins throughout the clinical offices of the CLSC where I had done residency as he was developing SSE in Quebec. This was also a time for many of us associated with CAPE to begin connecting with the Canadian Coalition for Green Health Care.

Two students did the bulk of this work with my mentorship- Lisa Mu a medical student from Western, spent a summer and developed a bilingual pamphlet which was supported by the Ontario College of Family Physicians (OCFP). Environmental Health Committee, CAPE and many partners, Later environmental studies Jasmine Mah, supported by an OCFP summer assistantship, developed a more extensive manual with many resources and references.

Dr. Elaine Blau, a colleague from McMaster University developed a challenge for McMaster family medicine teaching sites on greening practices culminating in a paper led by Farhan Asrar in Canadian Family Medicine on Greener medical homes.

In 2018 with leadership from Linda Varangu, Kent Waddington and others from the Canadian Coalition and support from Jean Zigby and SSE, the late Lynn Marshall and CAPE the first Green Office Toolkit was developed and released on Earth Day 2018. I am pleased to be involved once again with the new leadership at the Coalition to update the toolkit, now with the inputs of many more, in time for Earth day 2023.

Neil Arya

> In the end, there is only one planet, and healthcare – and indeed society as a whole – has to learn to live within the Earth's boundaries.

Dr Trevor Hancock
Co-founder of the Coalition
Hon FFPH Born at 311 ppm CO2
Retired Professor and Senior Scholar
School of Public Health and Social Policy
University of Victoria

1.0 INTRODUCTION AND BACKGROUND

Welcome to the Green Offices Toolkit, designed to simplify and inspire the 'greening' of your health care practices and your office or building. Here you will find practical and affordable ideas to make eco-friendly office improvements, with the ultimate goal of helping health professionals support the health and wellbeing of patients, while respecting the foundations of health for present and future generations. Healthcare is estimated to cause between 6-10% of all environmental harm (and ensuing illness) within Canadian society. An increasing number of clinics and health institutions across Canada and the world are looking at how they can have better impacts on the planet we depend on.

Having a green office doesn't have to be costly. In fact, the benefits of a green office can include cost savings, as well as a healthier office environment, and improved patient and staff experience. Cost savings mainly result from reduced energy, waste and improved efficiencies.

It is hoped that patients and clients may appreciate and learn from the examples set by their care providers and take environmental and health-conscious actions in their own offices or homes. In addition, anything we do to reduce our environmental footprint will help reduce the impacts of climate change. The Lancet Commission on Climate Change has identified climate change as both the greatest global health threat and opportunity of the 21st century.

While there are many ideas beyond this toolkit on ways we can be better stewards for our environment, we provide a selection of tips and suggestions which are easy to implement, evidence-based or-informed, cost effective and apply to a variety of clinical contexts.

This toolkit was a team effort with the collaboration of many across the health care workforce. Doctors, medical students, dentists, nurses, public health, health care NGOs, and other health practitioners and organization representatives across Canada wrote and contributed to the sections in this toolkit. These tips may act as a starting point for more sustainable actions and inspire the process of striving towards a better future and healthier planet. As well, not every section is appropriate for all clinical situations: choose the parts that fit your context best and move forward.

This is Toolkit 2.0. An update of the original toolkit which was launched exactly 5 years ago, on Earth Day 2018!

2.0 HOW TO BEGIN

SUJANE KANDASAMY (MARKHAM)

Taking the first few steps toward integrating environmental stewardship practices within workplaces is often the most challenging aspect of catalyzing change. To help support this process, we have identified some key phases to help scaffold the implementation process:

1) Learn and connect;

2) Allot time and creativity;

3) Start with simple goals and easy wins;

4) Bring supporters together;

5) Monitor and document;

6) Celebrate successes.

3.0 IMPLEMENTATION TIPS

> Doctors and administrators can integrate principles of sustainability into their clinics without burning themselves out. The idea is to begin with popular and easily achievable strategies first, such as office recycling or bicycle racks. Examples exist in every office. After they're implemented, examine how successful they were, readjust, and consider the next move.

Dr. Jean Zigby
Founding President of Synergie Santé Environnement
Past-President of Canadian Association of Physicians for the Environment

CREATION OF SYNERGIE SANTÉ ENVIRONNEMENT

In 2002, at the Local Centre for Health and Social Services of Côte-des-Neiges (Montreal), a family physician invited the director of materials and finance to form the first Green Team of a clinic in Quebec.

They had a simple vision: show that healthcare could begin caring for the environment by instituing recycling throughout the centre.

That initiative grew and spread into creation of the not-for-profit organization Synergie Santé Environnement in 2007, an organization that now collaborates with scores of health centres across Quebec to reduce their environmental impact.

SYNERGIE SANTÉ ENVIRONNEMENT

3.1 OPTIMIZATION OF MEDICAL INTERVENTIONS

In 2021, a study was published in the Lancet which showed the carbon footprint of the National Health Service (NHS) in England [The Lancet]. This study was a game changer. Greenhouse gas (GHG) emission data from primary care were responsible for about 23% of all NHS emissions. 60% of these emissions came from clinical practices such as medications and inhalers, and 40% came from running the practice, including energy, travel, medical, and office goods and equipment.

When looking at all supply chain purchases, data also showed that pharmaceuticals were responsible for close to 50% of the GHG emissions.

In addition to the carbon footprint, there are also other environmental issues to consider for a greener more sustainable clinic. These include biodiversity, toxic waste, and water as a resource, and any local environmental issues or concerns.

3.1.1 CHOOSING WISELY IN YOUR OFFICE

CHOOSING WISELY CANADA

Individual clinicians can be powerful and influential actors in the climate crisis. One way that they can have an impact is by implementing 'Choosing Wisely' and reducing the use of unnecessary tests and treatments. Unnecessary tests and treatments expose patients to potential harm, consume precious health care resources and contribute to waste and carbon foot print.

Simple implementation tips:

1. Participate in a Choosing Wisely Canada campaign[1]. Choosing Wisely Canada campaigns provide tools and resources to help implement changes in your practice. https://choosingwiselycanada.org/recommendations/
   - Let's Clear the Air - Encouraging thoughtful conversations between clinicians and patients who have received a diagnosis of asthma or COPD.
   - Time to Talk - Encouraging serious illness conversations to avoid potentially harmful or overly aggressive tests and treatments that may not align with a patient's goals and wishes
2. Implement a Choosing Wisely Canada Toolkit. These toolkits provide step-by-step guidance for how to implement a Choosing Wisely Canada recommendation: *(see more CWC toolkits on page 8)*
   - Drop the Pre-Op – Reducing unnecessary pre-operative testing.
   - Understand the Gland - Appropriate ordering of free thyroid testing

Advanced Implementation tips:

- Do a QI project on a Choosing Wisely Canada recommendation that might apply to your practice. There are 450 to choose from.
- Choosing Wisely quality improvement activities can also be used by physicians for credit towards licensure and maintenance of certification programs:
  - College of Family Physicians of Canada: Mainpro+ Program.
  - Royal College of Physicians and Surgeons: Maintenance of Certification

By choosing wisely in your office you are reducing unnecessary tests and treatments that may expose patients to potential harm, reducing the consumption of precious health care resources, and taking a positive step to combat the climate crisis.

References: [1]

3.1.2 END OF LIFE CARE

OLIVIA LY (KITCHENER)
MYLES SERGEANT (LYNDEN)

McMaster University
Family Medicine

The end-of-life period is associated with an exponential increase in healthcare costs, driven by hospitalizations[2]. However, the value of acute inpatient care is debatable as most Canadians prefer to receive end-of-life care at home, and aggressive interventions may have limited clinical benefit. Community-initiated palliation both enhances patient-centered care and reduces hospitalizations and healthcare emissions.

Simple implementation tips:

1. Advanced care planning (ACP): Having discussions about patients' goals of care prior to admission reduces hospitalization rates in the terminal year by about 17% [3]. Routine advanced care planning discussions alone would reduce the average days in hospital in the last year of life from 21 days to 17 days per person when calculated with Canadian data. Resources for ACP discussions can be found here: https://www.advancecareplanning.ca/resources-and-tools/
2. Early palliation: 90% of decedents die from chronic disease, which typically has a predictable trajectory. Palliative care initiated >60 days before death reduces hospitalization days in the last 2 weeks of life by an average of 3.5 days per person[4]. Palliative care in the community any time in the last 6 months decreases hospitalization by a relative rate of 12%, or by about 2.1 days in the terminal year[5].

Advanced implementation tips:

1. Advocate for increased long-term care and hospice capacity: Alternate level of care (ALC) is a designation provided to patients who no longer require acute care services but still occupy a hospital bed due to discharge delays. In Canada, ALC days account for over 15% of hospitalization days. Eighty percent of ALC days are accrued by patients 65+, and 40% are attributed to patients in the last 90 days of life[6]. Improved access to lower-intensity settings such as long-term care and hospices would minimize healthcare emissions while improving quality of life.

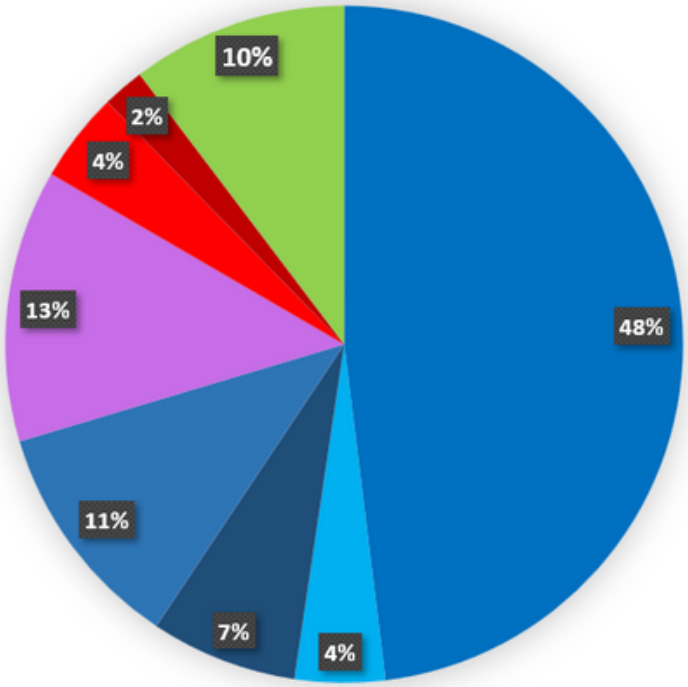
End-of-life is often associated with resource-intensive hospitalization that is not consistent with patient values. By improving advanced care planning, early palliation, and access to alternative community-based settings, we can empower patients to die comfortably while dramatically improving healthcare emissions.

References: [2-5]

3.2 MEDICINES

Pharmaceutical production is one of the largest causes of CO2 emissions and also has impacts on the environment in terms of waste. In clinics within NHS England, production of medications make up 48% of climate emissions as seen in this pie graph and chart below, and the emissions from inhalers adds another 13%! [7]

Climate action....What about my clinic?



Categories	Contribution
Supply Chain	
Pharmaceuticals	48%
Medical Equipment	4%
Non-Medical Equipment	7%
Other Procurement	11%
Medications (Delivery of Care)	
MDI Usage	13%
Delivery of Care	
Building Energy	4%
Water & Waste	2%
Travel	
Business & Personal Travel	10%

The data was extracted from *The Lancet 2021 Tennison et al.* article and translated to percentages.

Click here to read the full text

3.2.1 DEPRESCRIBING

SUSTAINABLE PRESCRIBING WORKING GROUP - CANADIAN COALITION FOR GREEN HEALTHCARE

We prescribe a lot of medications in Canada. Over-prescribing is well documented in terms of patient harms and financial costs. Now we know that medications make up approximately 25% of the entire healthcare carbon footprint! [7] The simplest way to reduce this footprint is by prescribing less medications.

Simple implementation tips:
There are organizations in Canada which have been helping healthcare providers avoid over-prescribing for years for the benefit of our patients.

Here are their links:
1. Deprescribing.org - Evidence-based clinical practice guidelines, algorithms and others tools for prescribers and patients in all care settings. Many tools also available to support deprescribing in LTC homes. [8,9]

2. Canadian Medication Appropriateness and Deprescribing Network - Handouts, videos, materials to support the public, clinicians, and educators with deprescribing and achieving the appropriate and safe use of medications in Canada

3. Choosing Wisely Canada - Recommendations by specialty. [10]
- Specific office recommendations by *CWC* include:
  - Using Antibiotics Wisely for the management of respiratory tract infections.
  - Deprescribing proton-pump inhibitors in primary care.
  - Deprescribing benzodiazepines and sedatives hypnotics in primary care.
- You can also find specific recommendations for deprescribing in hospital settings for Hospital pharmacists. [11]

Other implementation tips:
1 Give short course or delayed prescriptions where appropriate.
2. Routinely ask your patients about over the counter medications.
3. Do a QI project to measure your success.

Every medication has a carbon footprint. Avoiding polypharmacy is the easiest way to decrease our collective footprint.

References: [7-11]

3.2.2 MDI SWITCHES

ANTHONY D. TRAIN (KINGSTON)
NICOLE NAKATSU (KINGSTON)

QUEEN'S FAMILY MEDICINE
QI EDUCATION PROJECT

In primary care, one of the largest sources of greenhouse gases are from pressurized metered-dose inhalers (pMDIs). These inhalers use a propellant called hydrofluoroalkane, a powerful greenhouse gas, to deliver the medication. pMDIs are an effective delivery device for respiratory illnesses, however, about a third of patients prescribed inhalers do not have an objective diagnosis of Asthma or COPD. Many patients can be switched to dry powder inhalers (DPIs) which have a much lower carbon burden.

Simple implementation tips:

1. Younger, healthier patients who take pMDI Salbutamol (Ventolin) and inhaled corticosteroid (ICS) can be switched to combination DPI containing long-acting beta-agonist (LABA) + ICS (e.g. Symbicort).
2. Instead of starting a pMDI salbutamol, start DPIs such as terbutaline (Bricanyl), salbutamol Diskus, or formoterol/budesonide (Symbicort) as coverage allows.
3. Ensure patients have an objective diagnosis of asthma or COPD by ordering spirometry and/or Pulmonary Function Testing (PFTs). [Prescribing in primary care playbook].

Advanced implementation tips:

1. Using your EMR, generate a list of all patients who use puffers and identify patients who can be easily switched from pMDI to DPIs (this may require some EMR know-how or data analyst/IT support).
2. Create email/mail out to all patients on pMDIs to create awareness of environmental impact of pMDIs and invite them to see if switching is appropriate for them.
3. Build a practice-wide Quality Improvement project aimed at reducing prescriptions for pMDIs while appropriately switching to DPIs. Involve all staff, allied health professionals, students/residents and colleagues in a collaborative manner.

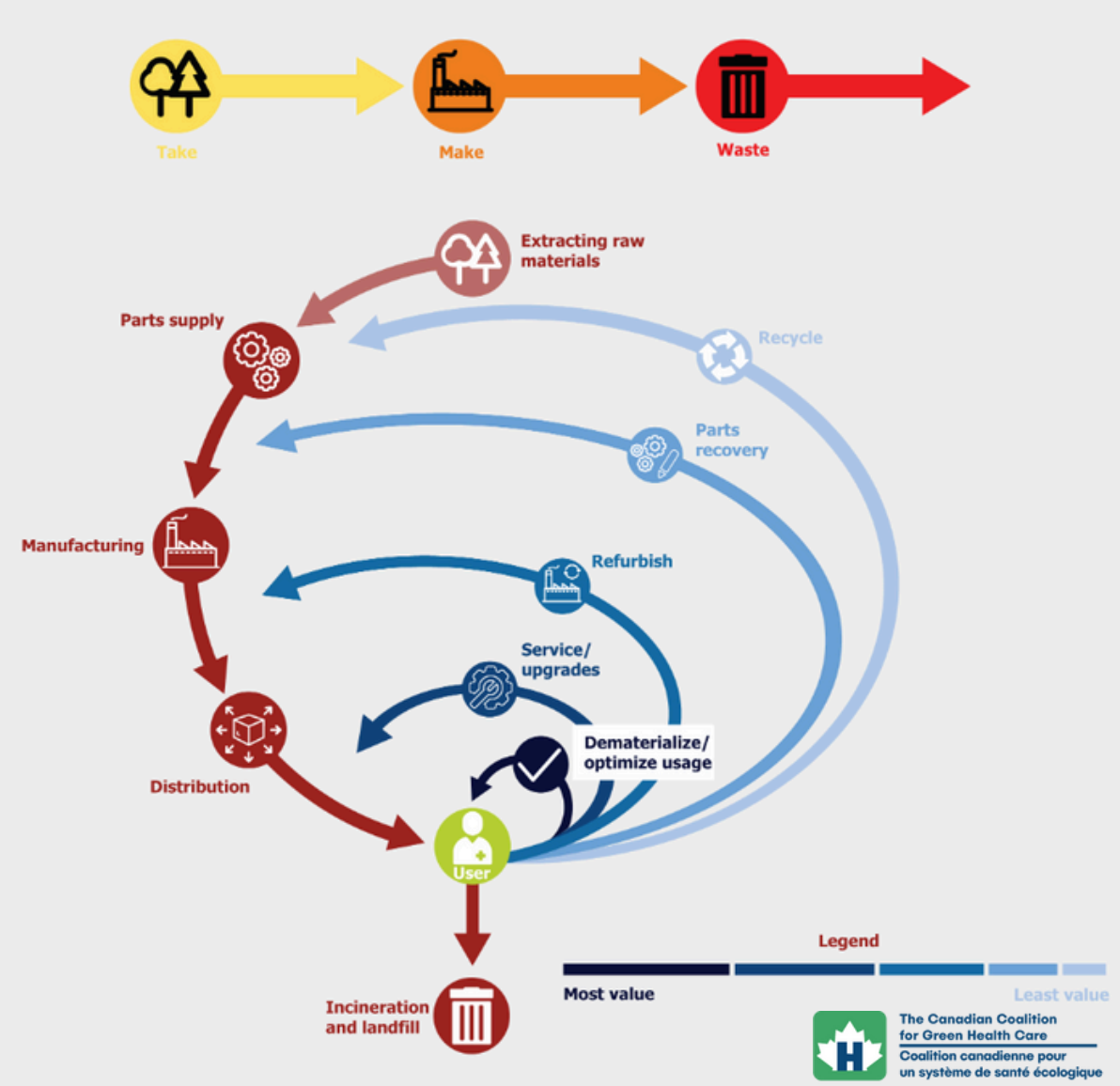
Switching puffers opportunistically & systematically can create significant positive difference to healthcare carbon emissions burden. Patients are very eager to partner with prescribers in making healthcare more environmentally friendly.

References: [12-16]

3.3 SUPPLY CHAIN

Our society relies on a linear economy. We dig materials out of the ground, ship them to manufacturing, ship to packaging, ship to a health facility, use the product, and then ship to the dump. With 8 billion people on the planet, this has proven to be a devastating way to do business! If we get to the recycling stage too early; we have failed.

How can we stop excavating everything we make? We can optimize our clinical approaches, upgrade and use reusable health care products, repair, refurbish, repurpose and share before they are recycled or composted to avoid disposal as long as possible. See graphic below which shows the difference between the Linear Economy (yellow) and the Circular Economy*.



*Adapted from "CleanMed Europe, Collaborating to Achieve Healthcare Circularity", by Health Care Without Harm Europe and Philips, 2020. Copyright 2020 by Philips. Adapted with permission.

3.3.1 CONSIDER PURCHASES

DR. CURTIS LAVOIE (OTTAWA)

Medical supplies are carbon culprits! Manufacturing and transporting all those gidgets and gadgets and supplies to keep your office running requires huge fossil fuel consumption. By choosing ones with less packaging and smaller footprints, and generally reducing, reusing, or eliminating them you can have a huge impact.

Simple implementation tips:

1. Get rid of exam table paper: they don't prevent infection transmission. (Still need to wipe down between patients, that doesn't change)
2. Talk to staff and colleagues: "What can we cut down on?" Everyone in the office is a consumer, and they will notice opportunities!
3. Send a note to your suppliers: "I want greener supplies!". It is a great idea to request products with less greenhouse gas emissions: better production, less packaging, less transportation. It also increases awareness: the more we ask the more they are motivated to change.
4. If you do have to purchase a product, look for product certification from programs such as ECOCERT, EcoLogo, Green Seal and Energy Star.

Advanced implementation tips:

1. Invest in reusables: In general reusables are much better than disposable supplies. And saves money. Also beware: Disposables are highly marketed, so avoid switching over to them even if your supplier asks.
2. Fix things that break down: try to avoid new equipment because manufacturing new ones has a huge footprint (sometimes called "embedded carbon footprint"), and most things are fixable.
3. Innovate: think outside the box! What can we get rid of or change to reduce our greenhouse gas emissions? The world is hungry for solutions to the climate crisis: if you find something consider writing a letter to the editor of your favourite journal or website.

The stuff we buy, and use has a hidden footprint, and this footprint can be huge in healthcare. Every little sheet or box or cup counts!

References: [17-23]

3.3.2 REDUCE CARBON & WASTE FROM OUTPATIENT PROCEDURES

STEPHANIE TOM (MISSISSAUGA)

Single-use and pre-packaged trays can be a source of significant procedural medical waste. By identifying what can be reusable with cleaning/sterilization or identifying key materials required for office procedures, this can streamline procedural flow while also reducing equipment footprint.

Simple implementation tips:

1. Rid/cut down on single use: Can single use items be safely eliminated or minimized?
2. Use an onsite autoclave for sterilizing reusable metal instruments, for example metal speculums.
3. Review what's in pre-packaged trays, are certain items utterly useless and just thrown out? Is it possible to order required items separately?
4. What is the minimum amount of equipment and steps required to complete an office procedure?

Advanced implementation tips:

1. Reusable equipment: Identify items that can be safely cleaned/sterilized, single-use may or may not have only slight public health benefit while having significantly higher environmental footprint
2. Is it possible to advocate to have change in how trays are designed and packaged?
3. Advocate with manufacturers on ensuring reusable, easy to clean/sterilize equipment

Prepackaged trays typically have lots of unnecessarily items so order required items separately or advocate for clinician- and environmentally-friendly designs. Reusable equipment can be safely cleaned and sterilized while protecting patient-provider health, reducing equipment costs and reducing environmental footprint for outpatient procedures.

References: [24-26]

ORA Ontario Rheumatology Association

3.3.3 REUSE PPE

LAURIE HOUSTON (GRAVENHURST)

Health Canada approval of reusable PPE means that these products meet safety standards when coupled with cleaning and sterilization processes. Peer reviewed studies have shown that reusable gowns are as safe or safer than disposable gowns.

Reusable PPE also brings security that you will always have the protection you and your patients need, regardless of supply chain interruptions. Reusable PPE is also cheaper than buying and throwing out disposables, and provides local jobs. Finally, LCAs have shown that reusable PPE is better for the environment, including generating less waste and GHGs, uses less water and energy and other resources.

Choosing reusable PPE not only eliminates the waste and associated microplastic contamination generated by single use items, but all the associated packaging and excessive transportation footprint. **Choosing reusable PPE can have a huge positive environmental impact.**

1. Get rid of single use level 2 gowns. Reusable isolation gowns can cost between $8.50 - $17 per gown and they can be rewashed 75 times. Some clinics have their own onsite laundry, others use a laundry service that will provide gowns and launder them for you. The cost of a laundering service varies, but can be as high as $5.00 per gown in some areas.
2. Use Health Canada approved reusable respirators in place of single use N95 masks. Canadian-made respirators that only require filter replacement once per year are cost effective: roughly $35-$40 per unit and replacement filters are $18 -$20.
3. Reusable surgical masks are now approved by Health Canada for use in health care. Made in Quebec, these can be cleaned and reused up to 100 times. A reusable mask costs $37.50, bringing the cost down to $0.375 plus laundering.
4. Evaluate the need to wear gloves for the procedure you are doing; intact skin is still the best barrier, and if you are carrying out a procedure that doesn't truly require glove use (and it is only an optical issue), don't wear them!

The least environmental impact scenario is the use of reusable gowns, made in Canada, washed "in house" while using a microfilter on your washer to collect microplastics from the waste water, and recycle the gown at the end of life.

References: [27-32]

3.3.4 REDUCE TOXICS

CHLOÉ COURTEAU-VÉZINA (MONTREAL)

Since the dawn of the age of industrialization, though not prohibited, countless man-made chemicals have been identified as potentially hazardous to health, including the broad category of endocrine disruptors.

Endocrine disruptors can interfere with the functioning of our endocrine system and affect the overall health of individuals and their offspring. These molecules can block or activate hormone functions, for example by binding to their receptors and mimicking their action. Their biological effect occurs even at very low concentrations. Their possible consequences on human health are of concern: metabolic disorders (obesity, diabetes), cardiovascular diseases, developmental disorders, cancers, fertility disorders and reproductive toxicity.

These molecules are found in many products, including plastics, cosmetics (perfumes, fragrances), household cleaning products and electronic products. The most common endocrine disruptors added to medical devices are phthalates, such as DEHP and bisphenols. They are found in IV bags and tubing, medical gloves, disinfectants and even building materials.

Simple implementation tips:

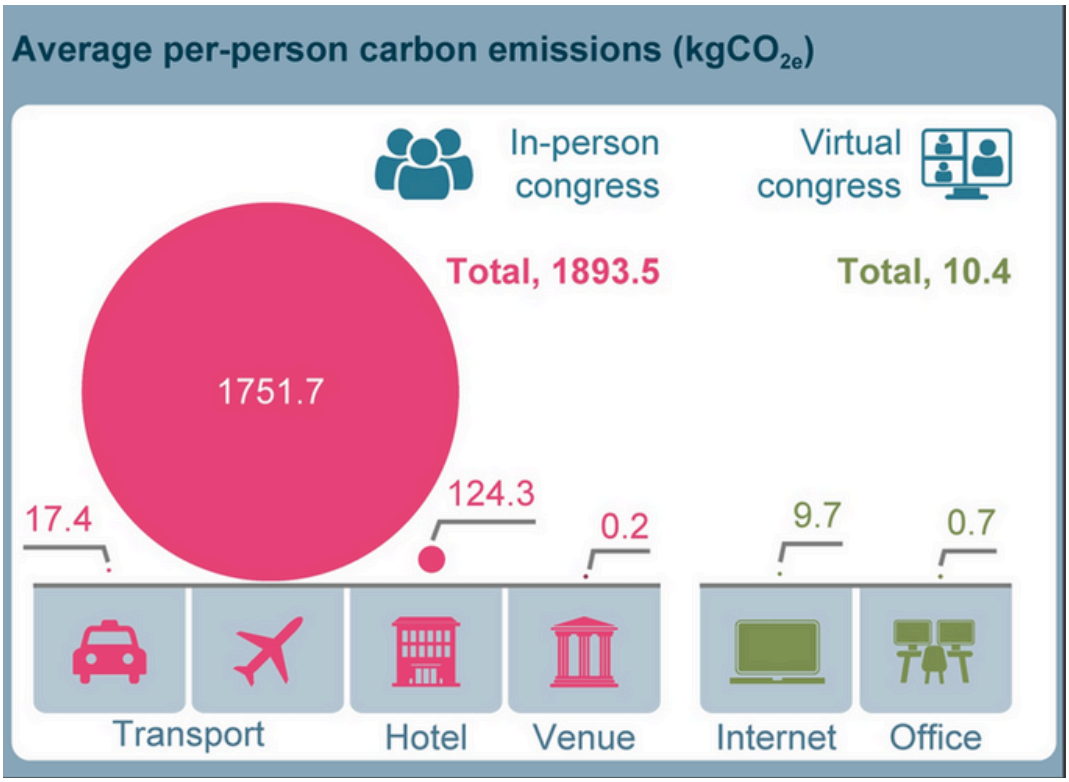
1. Advise patients to use only cosmetic products (soaps, lotions, creams) that are free of parabens, phthalates, and triclosan and to avoid scented products.
2. Advise pregnant patients and parents of young children on ways to minimize their exposure to endocrine disruptors: glass bottles and containers, fragrance-free products, wooden toys, natural materials in their rooms, etc.
3. In the clinic dining room, have access to ceramic plates or glass containers to avoid using plastic containers, especially in the microwave.

ÉCO CMDP LAVAL

3.4 TRANSPORTATION

Zero emission vehicles are great, but they do not compare to public transport, active travel, car pooling or virtual medicine. Virtual medicine is arguably the new Queen of Green because the patient does not have to travel.

Also, the option of the virtual conference will significantly decrease our conference footprints. This is a study of the carbon footprint of Americans travelling to a conference in Europe. Some stayed home and did the 'virtual congress'.



Adapted from Gattrell, et al, 2020 Pharmaceutical Medicine

3.4.1 VIRTUAL MEDICINE

STÉFAN CHÉRY (MARATHON)

The use of virtual medical appointments has gained popularity during the covid-19 pandemic. This method of delivering healthcare was essential to maintaining safe, consistent care during the pandemic. Though virtual care cannot replace in-person visits, several positive outcomes arose from its use. A study revealed that virtual medical care appointments led to a significant reduction of carbon dioxide emissions, reduction in gasoline use, and reduction in patient personal cost to attending medical appointments in person. Virtual visits have the means of ensuring continuity of care for patients who have difficulty with transportation due to cost or even being in remote locations. Virtual technology has been used as well to provide continued education for medical professionals. Just as virtual visits can connect patients to providers, virtual conferences and training can connect specialists from around the world with providers far and wide while reducing our environmental impact.

Virtual Visit Options:

- Telephone Visit. One of the simplest and easiest methods to incorporate into practice. Telephone use is already a part of medicine. Clinicians have and can use phone based appointments to follow up with test results, prescriptions renewals, answer medical questions and more. The decisions on what is deemed appropriate with phone based appointments are clinic specific.
- Messaging. This virtual method is typically seen as asynchronous. It can involve the use of email, telecommunications messaging (ie. texting), or patient HUB centre access into an electronic medical record (EMR). This type of interaction allows for patients to submit questions to be later responded to by their provider in a timely manner.
- Video visit. The most commonly known form of virtual visit allows for both audio and visual interaction with patients. There are several different programs and platforms in combination with appropriately specified computer hardware that will allow for this type of interaction. Notable examples include Zoom, Skype, and Google Meet. Google Workspace and Microsoft Teams are integrated business solutions that combine multiple services (i.e email, calendar, secure cloud storage, messaging, videoconferencing) into one.

platform. These business solutions allow for increased connectivity, and superior privacy and security measures. Lastly, there are businesses that develop, and install virtual care solutions based on a clinic's needs. At additional cost they can provide hosting, maintenance and technical support.

Other Uses for Virtual Technology:
Medical conferences and training courses are the cornerstone of medical professional growth. In attempts to continue to provide professional development during the covid-19 pandemic, virtual venues were adopted to connect healthcare professionals. Similar to virtual visits the use of virtual venues can reduce the negative environmental impact associated with travel. Additional benefits include increased attendance, especially from those providers who would otherwise be prohibited from attending in person due to cost, limited travel options or living/working in a remote location. Virtual venues can be associated with an overall lower operating cost when compared to the equivalent in-person conference. A discussion paper found that virtual conferences were associated with increased participation, especially in those providers whose primary language was not the same as the presenter. Having the means to type questions and comments reduced the anxiety associated with having to speak in a large group. Again, not always perfect, presenters at these conferences did feel a reduced sense of connection with their audience during virtual sessions, and felt limited when attempting to teach new techniques. Another benefit was associated with asynchronous learning. Providers appreciated having the option of viewing conference content at a convenient time when not able to participate in the live session.

Determining which type of virtual visit to integrate into practice can be a daunting task. There are a lot of tools available to assist in making this process easier (3,4). Benefits of using virtual visits range from being more 'green' minded to reduce cost to provider and patient. Though not a perfect solution, or even a replacement for in-person assessment, virtual visits are likely to remain a viable means of providing healthcare. Virtual venues are an alternative means of connecting providers together to further expand the knowledge base. The future is limitless with respect to virtual conferences; as the technology grows the possibility of augmented reality (AR) and 3D integration for future medical conferences are exciting prospects.

References: [33-40]

3.4.2 BIKE FRIENDLY OFFICE

SEE ALSO SECTION 4.7

Do you have a safe place for people to lock or store their bikes?

Is it safe to travel to your facility?

Can you advocate for safer streets?

VGH Cycling Centre – Award-winning bike facility for staff

The Vancouver General Hospital (VGH) Cycling Centre is a membership-based facility that is open 24 hours a day, all year round. With 174 bike racks (including 12 outlets for electric bikes) and eight bike lockers. It is one of the region's largest facilities for bicycle commuting and includes change rooms, showers, towel service, storage lockers and bike stands with tools and pumps.

3.5 THE BUILDING

If you're new to green offices, energy is a great place to get started. As populations continue to grow, it is becoming ever more important to reduce energy consumption, and rethink how various forms of energy are generated, harnessed, delivered, and used. As the carbon tax increases, this is also a great way to save money.

Other practices which are also important include: conserving water, supporting practices that provide good indoor air quality, proper management of medical waste such as pharmaceuticals, and composting food wastes where possible.

CRESCENT BEACH MEDICAL ARTS

White Rock, BC

The first Canadian eco-office?

CRESCENT BEACH MEDICAL ARTS

Since the mid 1970's, Dr. Charles King and his partner Wendy Wulf pioneered green family medicine practices in their Crescent Beach clinic in White Rock, British Columbia. The clinic's environmentally conscious ethos was reflected in all aspects of the practice, from using reusable equipment where appropriate, to making green purchasing decisions such as selecting all paper products with post-consumer content and purchasing non-toxic cleaning supplies. The clinic composted their organic waste, and patients appreciated the fruits of their on-site edible garden. In recognition of their ground-breaking efforts, Crescent Beach Medical Arts was named, in the late 90s, the Greenest Small Office in BC.

3.5.1 SAVE ENERGY

DES LEDDIN (HALIFAX)

Outpatient and primary care work is conducted in buildings - these require energy for heating, ventilation, air conditioning and power for lighting, computers and other electrical equipment.

There are no studies of the carbon footprint related to primary care facilities in Canada. There is information from the United Kingdom which indicates that primary care accounts for nearly 10% of building energy in the national health system [41]. This amounts to 283 ktonnes of CO2 equivalent per year in the UK. If Canada's primary care facilities are similar to the UK, then correcting for population it can be estimated that primary care buildings contribute 170ktonnes of CO2e to Canada's health footprint. A study of primary care in Switzerland estimated that buildings were responsible for nearly 30% or primary care's emissions [42].

Building energy requirements will vary by geographical location, the age and characteristics of the building such as insulation, type of windows, extent of heat leakage, type of heating, air conditioning, and ventilation.

Many primary care offices are leased and part of larger premises. A primary care physician may not be able to influence some of the drivers of building energy use but there are still steps which can be taken.

1. Talk to your building manager. Emphasize the win-win for all parties by making the building more environmentally sustainable.
2. Heating, ventilation and air conditioning (HVAC) are major drivers of building energy use. They do not need to run at full power when the building is not occupied. Discuss with building management how HVAC can be adjusted when the office is empty.
3. Educate your office staff on why building energy needs to be reduced.
4. Replace all incandescent bulbs with LED and install motion sensitive switching.
5. Manage the office electrical equipment such as computers, photocopiers and printers. Buy energy efficient equipment and turn it off at the end of the day. Make sure that computer monitors are programmed to automatically turn off after several minutes.
6. If you do own the building then the opportunities are much greater and include getting an energy audit, installing heat pumps and installing solar panels and, in some areas, purchasing cleaner energy.

References: [41-43]

3.5.2 CONSERVE WATER

MARK A. CACHIA (HAMILTON)

A flourishing natural environment cannot occur in the absence of water. As patient health is intertwined with environmental health, clinicians must be effective stewards of this resource.

Simple Implementation Options:

1. Regularly inspect plumbing infrastructure for leaks and ensure maintenance is up to date.
2. Ensure irrigation systems are calibrated correctly to not water driveways, pavement, etc. and are not active during rainy periods.
3. Post signage in appropriate locations to promote good water usage habits (e.g., reminders to turn off taps once done or notify staff of leaks).

Advanced Implementation Options:

1. Implement a rainwater collection system for landscaping applications.
2. Conduct a water usage audit and implement an ongoing monitoring plan for conservation.
3. Install low-flow/automatic shut-off plumbing infrastructure (e.g., toilets, faucets, urinals, etc.).

Water conservation opportunities can be found in other clinical areas depending on the size of the facility and more suggestions, including where the above tips originated from, can be found in the Canadian Coalition for Green Health Care's GHG+H2OToolkit. When retrofitting any clinical infrastructure, it is important to ensure that any changes adhere to infection prevention and control best practices.

References: [44-49]

3.5.3 INDOOR AIR QUALITY

DOMENICA TAMBASCO (TORONTO)

The medical office is a space which can be healthy for staff and patients and model what your home environment might look like. Poor indoor air quality can cause health problems to staff and patients such as respiratory, cardiac (palpitations), neurologic (headaches), cognitive issues, irritation of eyes, nose and throat, and fatigue. This will decrease productivity of staff and could also lead to increased sick days. It will also affect patients' ability to attend office, especially if they already have predisposing health conditions such as asthma, heart disease, allergies, migraines, or chemical sensitivities.

Simple implementation tips:

1. Use wet mop for floors and wet cloth to remove dust from surfaces.
2. Ventilation (open windows when outdoor air quality is better, usually morning).
3. Remove sources of toxic chemicals (such as spray or plug-in air fresheners and some carpets).
4. Institute a scent-free office policy.
5. Add plants to filter the air.
6. Reduce clutter.

Advanced implementation tips:

1. Consider air monitor to measure air contaminants in addition to required CO monitor.
2. Choose non-toxic and no off-gassing furniture or furnishings.
3. Filtration (change HVAC filter regularly, using asthma society approved HEPA filter).
4. Consider additional air purifier with carbon filter for odors and UV for biologic pollutants.
5. Fix water leaks to prevent mold contamination.
6. Consider safest options for renovation projects.

Many people present with environmental health issues to the clinic at Women's College, including issues such as chemical sensitivities and chronic fatigue. Many people also suffer from other conditions related to the indoor air quality. Since most people spend most of the time indoors, it is vital to ensure that our air is clean and healthy. Ensuring our offices/clinics have safe and good indoor air quality benefits not only those who are sensitive to pollutants, but everyone.

References: [50-53]

3.5.4 MEDICAL WASTE

GIGI WONG (VANCOUVER)

Globally, medical waste is a topic of emerging concern and health care waste can negatively impact the environment [WHO, 2018]. The provision of healthcare also contributes to our climate crisis when accounting for direct emissions, upstream and downstream activities [Health Care Without Harm, 2019]. In Canada, healthcare is estimated to be 4.6% of the country's greenhouse gas (GHG) emissions with drugs accounting for 26% of healthcare carbon emissions. [Eckelman, Sherman and McNeill, 2018].

In addition to the climate crisis, drugs also negatively impact planetary health as chemical pollution, and novel entities [Persson et al 2022]. Drugs have the potential to disrupt the ecosystem due to their unique properties: designed to cause a physiological effect, which may impact many other living things in our shared environment who share common physiologies with humans. Therefore, efforts to reduce or manage pharmaceutical waste properly will align with sustainable healthcare initiatives.

Implementation Tips:

1. Educate patients on the importance of proper drug disposal. Advise against flushing down the toilet. Direct them to visit the Health Products Stewardship Association website that can look up the location closest to them.
2. Look up where the closest collection location is and inform your patients.
3. Decline drug samples of drugs that you are unlikely to prescribe to avoid the waste in the clinic.
4. For medications that are intended for short term, or specific duration, include a reassessment date so the need for the drug can be assessed at the desired time frame.
5. When trying to switch medications, consider smaller quantities where appropriate (balance with availability of next appointment or follow up), to minimize unused drug waste.
6. For a more upstream approach, reduce polypharmacy while rationalizing medications during medication reviews, especially in the elderly and patient populations such as residential care settings.

Drug waste contributes to greenhouse gas emissions and is also chemical pollution. Stewardship for drug waste will help our population and minimize impacts to our ecology in non-target organisms.

References: [54-60]

3.5.5 COMPOSTING

LAURA KROEKER (KINGSTON)

Did you know? 1/3 of the food produced in the world is wasted
If and when that food is sent to the landfill it breaks down mainly inorganically, creating excess methane and other green house gases. Compost is an easy way to reduce the GHG emissions of organic matter decomposition by more than 50%.

The easiest way to compost at a clinic or hospital is to divert organic matter to a composting program, where the municipality or other organization picks up the waste to be composted and processes it.

If your work area already uses a municipal or other compost collection program, you can still help by:

1. Posting eye-catching posters above compost receptacles to show what does and does not compost
2. Hosting information sessions on what can be composted
3. Having compost collection bins in highly visible locations, and put them everywhere that garbage bins are present

If your work area does not yet have a compost collection system set up, you can still divert food waste into compost by:

1. Posting signs encouraging people to bring their organic waste home and to compost it there, rather than depositing it in the garbage
2. Advocating for common areas to have an electric composter/food waste processor, and post signs about how (and why) to use it

Up for a challenge? 3 more ways to increase compost:

1. Make sure all clinic and hospital contracts involving waste management include a plan for compost
2. Advocate for more composting options and opportunities in your area
3. Start a low maintenance conventional compost system on site: https://youtu.be/mwaEt1XdxtI

References: [61-64]

3.6 NATURE BASED SOLUTIONS

EMMA KO (MARKHAM)
NEHA MATHUR (AJAX)
MYLES SERGEANT (LYNDEN)

Did you know, for your city to be healthy you need approximately 30% tree cover? A city also requires native pollinators, grasses, and species for biodiversity. Nature-based solutions involve integrating Earth's natural systems to build green spaces that allow our cities and health care facilities to be more climate change resilient.

Plants make communities more resilient by absorbing carbon dioxide and removing pollutants from the air; providing shade for buildings and people; moderating high temperatures especially in urban heat islands; and providing ecosystems which enable biodiversity. Participating in the cultivation of green spaces is safe, easy, and accessible for all. For many, it provides great satisfaction as you can enjoy the fruits of your labour in your own community. Additionally, trees and gardens have many healing properties that can improve physical, mental, emotional, and spiritual health.

Simple implementation tips:

1. Plant at least one tree or shrub every year. This is a fun outdoor activity you can do with friends, family, and colleagues as the weather warms! If you don't have your own materials or don't know where to get started, a local tree-planting organization may help.
2. Start a pollinator garden in a convenient, hard to mow area. Pollinators are native plants and flowers which allow birds and bees to thrive.

Advanced implementation tips:

1. Start a green-space team for your local hospital or long-term care facility. Advocate to bring green spaces to your facility. Bring the forest to the patient!
2. Create a rain garden. Bioswales and rain gardens help to move water away from infrastructure.
3. Donate to local not-for-profits that grow green spaces.

Creating natural systems around our health care buildings contributes not only to planetary health, but to personal health and wellness as well.

References: [65-68]

3.6 NATURE BASED SOLUTIONS

MULTIPURPOSE LANDSCAPING

Well-planned green spaces can attract biodiversity, save water, promote native species, reduce maintenance costs (water, fertilizer), reduce load on city storm water drains, reduce heat island effect, improve air quality, and provide aesthetic appeal.

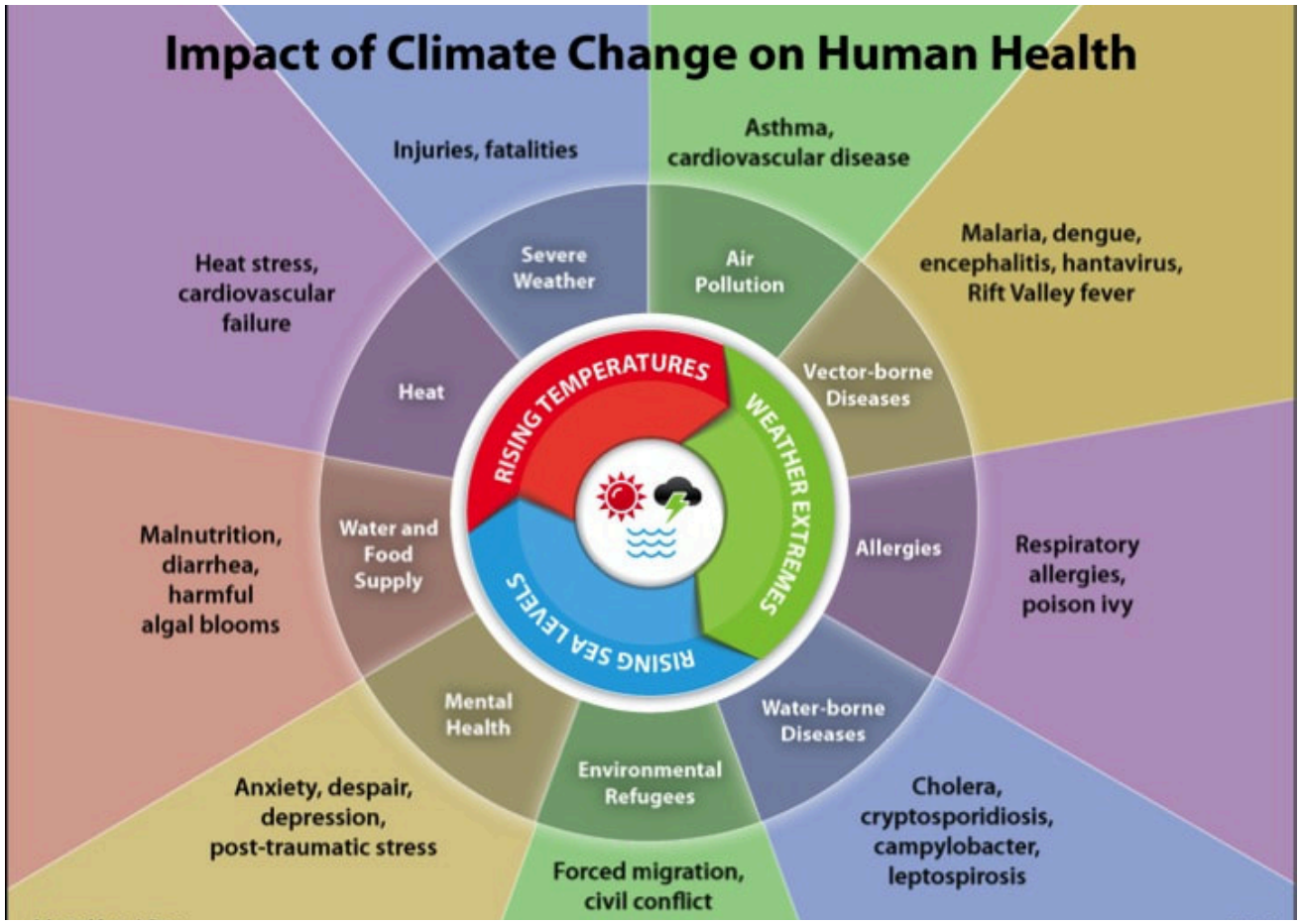
- Invite the landscape maintenance team to join your Green Team
- Go pesticide-free and place a display sign “Pesticide Free”
- Consider using soaker hoses or drip irrigation instead of sprinklers to reduce water use
- Choose the best watering time(s) based upon your vegetation’s requirements
- Ensure the sprinklers aren’t on during periods of precipitation
- Conserve water through xeriscape gardening
- Replacing lawns with a drought tolerant garden may reduce or eliminate the need to irrigate plants. Be sure to select varieties that are not known to produce or harbour common allergens
- Native plants tend to be well suited for local climate and low water use.

Habitat for butterflies, ladybugs and birds can help create a landscape which takes care of itself. These natural predators help with pest management without the use of pesticides.

TREES FOR HEALTH

4.0 PATIENT EDUCATION

The greatest impact clinicians can have on the health of the environment is through their leadership and influence in their communities.



Climate change is the defining crisis of our time and it is happening even more quickly than we feared. But we are far from powerless in the face of this global threat.

UN 2020

4.1 GENERAL PRINCIPLES

PATIENT EDUCATION

Clinicians are in an opportune position to positively influence the public through their intimate connection with patients.

Patients may look to their clinicians as role models, and may be inspired by their health care provider's healthy and environmentally conscious lifestyle and recommendations.

COMMUNITY EDUCATION

Education in your community is an important step in creating a greener and healthier environment.

Advertise community events such as bike month, Earth Day or awareness walks for various environmental health issues.

Prepare informational handouts for patients and staff on environment-related health topics such as active transportation, pharmaceutical disposal, energy and water conservation, chemicals or pesticides.

4.2 EMPOWER PATIENTS TO MITIGATE THE HEALTH IMPACTS OF CLIMATE CHANGE

DECLAN LAVOIE (HAMILTON)
ANNA GUNZ (LONDON)

The WHO states that climate change is the number one threat to human health. The impacts are complex and multifaceted, impacting people across the age spectrum, almost every organ system and affecting some populations disproportionately Health effects are described relative to the weather or environmental phenomenon associated with climate change, such as extreme weather events or extreme heat (see figure for overview). [65,66]

To help patients mitigate the risks of climate change on their health, we must understand the climate-related risks specific to: a) the populations we serve; b) the medical specialty in which we practice; and c) the weather- or environmental- events that may affect them. Below we list a few examples of health promotional advice and activities that can support patients in different climate events. It is not exhaustive, but illustrative of possible strategies and interventions.

Extreme Heat – Strategies to mitigate the health effects or heat include ensuring patients stay hydrated, optimize heat stress tolerate which may require alterations in medication plans, have access to cooling strategies (such as air conditioning or cooling shelters), and are prepared for blackouts (particularly those in high-rises with limited mobility). High-risk patients should be identified and supported with heat-plans.[67]

Extreme Weather Events – As extremes of weather become more common and severe, emergency planning should be discussed with patients. Those with limited means of extrication from danger or evacuation should be identified. Patients who have powered medical devices or medications requiring refrigeration require access to a generator. After an event, healthcare practitioners must recognize there could be intermediate and long-term affects to patients, such as deleterious consequences to mental health and challenges for patients managing chronic illness.

Infectious disease spread – Climate change is altering the incidence and geographic distribution of different infectious diseases, including vector-borne illness. Healthcare practitioners must stay abreast of emerging trends to provide disease-specific preventative advice and early diagnosis. For example, as the geographic range of Lyme-carrying vectors has migrated northward in Canada, [68] care providers in these regions can educate patients on prevention strategies, such as proper clothing and tick removal.

4.2 EMPOWER PATIENTS TO MITIGATE THE HEALTH IMPACTS OF CLIMATE CHANGE

Air pollution – Whether from biproducts of fossil fuel combustion or wildfires, air pollution has serious, deleterious effects on the respiratory, cardiovascular and neurological systems. For patients with chronic airway diseases such as COPD and asthma [69], optimizing disease management is important, as is patient education regarding how to modify outdoor activity with air quality index ratings.

Allergens – Pollen seasons will be extended, and geographic range expanded, potentiating new allergic sensitization. Exposure to indoor mold may also increase. Mold and pollen are associated with asthma-related emergency visits and hospital admissions [70]. Patient education on how to mitigate indoor and outdoor exposures can be helpful, as well as how to optimize their medical management.

The effects of climate change on human health are complex, interrelated and will continue to evolve as the climate crisis escalates. Health care providers have a critical role to mitigate risks to their patients through staying informed of the health literature, providing effective, evidence-based health promotion and risk reduction strategies, identifying patients within their practice who require individualized care plans in states of emergency, and advocating for climate action, environmental stewardship and the update of effective adaptation strategies within the health system and at the local, provincial and national levels.

ChEHC ON

CHILDREN'S ENVIRONMENTAL HEALTH CLINIC ONTARIO

C2HC CLIMATE CHANGE AND HEALTH COLLABORATIVE

References: [69-74]

4.3 ECOLOGICAL GRIEF AND ANXIETY

ANA HATEGAN, MD (BURLINGTON)

Why are these important?
The experience of ecological grief (i.e., grief in relation to ecological loss such as home environments, ways of life, landscapes, or species) and ecological anxiety (i.e., apprehension and distress about anticipated threats to ecosystems) are likely to become more frequent around the world [71,72]. Ecological grief and anxiety are not psychiatric disorders but rather represent psychological distress resulting from uncertainty about the future and warning about the dangers of a changing climate. As the experience of ecological grief and anxiety can become distressing, and even debilitating, it can increase risk factors for psychiatric disorders but also can motivate environment-related action [72]. Therefore, the consequences of ecological grief and anxiety can be maladaptive or adaptive.

Children and youth are believed to be at greater vulnerability due to their developing coping abilities [73]. It was projected that one billion children (nearly half the world's children) in 2021 were at "extremely high risk" of climate change impacts [74]. Therefore, climate-related anxiety may increase their risk of developing depression, anxiety, substance use disorders, and other psychiatric conditions [73].

How to manage these?
Although ecological grief and anxiety can be reasonable psychological responses to climate-related losses, given the anticipated increases in population-level changes, an urgent response is needed from public health stakeholders and policy makers. There are many ways in which the emotional suffering from climate-related anxiety can be mitigated, as further outlined below [71,72].

Simple implementation tips:
1. *Community connection.*
- Join organizations, whether in-person or online, that can help you process feelings related to climate change and connect with others to take meaningful action, including advocacy.
- Support your local community through volunteering, which can help build identity and provide an additional support network, both of which are known protective factors in psychological well-being.

2. Support group strategies.
- Share your worries by joining a support group; this can help in supporting types of emotional distress by bringing individuals together.
- Such strategies may help validate one's concerns by verbalizing: "I hear you, and it makes sense that you are worried about this problem."

4.3 ECOLOGICAL GRIEF AND ANXIETY

3. *Family-oriented focus*.
- Adopt and nurture a family-oriented response to a shared external climate threat, including acknowledging the challenge, providing time for compassionate communication with your children, validating their feelings of fear and helplessness, and jointly mobilizing hope and optimism through meaningful goal-directed approaches.
- Educate yourself on steps you can take along with your children to minimize your impact on the environment.
- Support your loved one's decisions to implement changes to their lifestyle, especially changes they can observe at home.

4. *Green social prescribing*.
- A walk in a natural environment can have positive impacts on well-being.

Advanced implementation tips:
1. *Healthcare training*.
- Invest in educating health professionals on climate change and mental health to increase capacity to recognize and manage the complications of this emotional distress (e.g., offer workshops, toolkits, and web-based teaching and learning approaches).
- Enhance clinical assessments and support. Remember that for a person who is functioning relatively well, anxiety due to climate changes can be understood as emotional reactions that may assist individuals in making a positive change and preserve a livable climate. However, clinical support may be required for those whose safety or functioning is impacted.

2. *Health equity approac*h.
- Identify and acknowledge health inequities when planning around the potential of future nature-based interventions to reduce health inequalities.
- Aim to build an adequate mental healthcare infrastructure and clinician familiarity with climate-related grief and anxiety.

Taking action may help you feel in control. Talk with others, join forces, and make lifestyle changes based on your values. What is needed?
- Accessible and safe spaces to explore emotional reactions to climate change;
- Political will to ensure that important strategies and supports are funded;
- Research required to support approaches of climate action and resilience.

References: [75-78]

4.4 SOCIAL PRESCRIBING

SONIA HSIUNG (TORONTO)
DOMINIK NOWAK (TORONTO)

Health professionals are caring for people with complex and overlapping social needs impacting health. Social prescribing is a person-centered approach connecting people presenting in clinic with non-clinical community supports. It emphasizes person-centered care, the individual's social needs and their strengths, as well as intentional collaboration across sectors. Social prescribing complements medical treatment, with literature showing success in reducing acute care and hospital use, as well as improving patient and health professional wellbeing.

Simple implementation tips:

1. Invite patients to use 211.ca or other local helplines to find local resources that can provide support addressing social needs.
2. Invite community organizations to share posters and brochures of their service offerings with your office.
3. Find resources or referrals in your community that can connect people with a multitude of non-medical supports (e.g. 211, an older adult access centre or other community organizations with intake services).

Advanced implementation tips:

1. Identify someone on your team who can act as a social navigator for patients.
2. Collaborate with community organizations in your region to create intentional social prescribing pathways for patients.
3. Follow up with patients and track the impact of social prescribing on clinical visits, medication prospections, and overall wellbeing.

Social prescribing helps health professionals connect health and social needs through community resources. Prescriptions can range from a referral to 211 or an older adult access centre, to a structured intake via a formal social prescribing program. Social prescriptions give health professionals a practical opportunity to help navigate the social determinants of health. https://www.socialprescribing.ca/

References: [79-82]

4.5 NATURE PRESCRIBING

MELISSA LEM (VANCOUVER)

Prescribing nature is an easy, effective and evidence-based intervention that improves patients' health and inspires biodiversity values. A growing body of research suggests that spending time in nature has a wide range of positive effects on human health, from reduced chronic disease to improved mental health and birth outcomes—over and above the benefits of exercise.

Simple implementation tips:
1. Register in Canada's national nature prescription program, PaRx, to start prescribing nature, along with benefits that reduce barriers to nature access, in your own practice.
2. Put up a nature prescribing poster, or print handouts to display to raise awareness in your clinical setting.
3. Remember to prescribe at least 2 hours a week, 20+ minutes at a time in nature, to maximize health benefits for patients.

Advanced implementation tips:
1. Contact PaRx to register your entire office or health team in the program.
2. Collaborate with local nature and community organizations to create intentional nature prescribing pathways and outdoor events for patients and clinicians.
3. Regularly follow up your initial nature prescription with patients, and track the effects of it on their need for clinic visits, medications and other markers of health and wellbeing.

Not only do nature prescriptions benefit patient health, but they also benefit planetary health. Research indicates that people across the lifespan who are more connected to nature engage in more pro-environmental behaviours—so every time you write a nature prescription, you're doing something positive for the planet at the same time.

References: [83,84]

PaRx
A Prescription for Nature

4.6 PLANT-RICH EATING

MEGHAN DAVIS (DUNDAS)
TATIANA GAYOWSKY (KINGSTON)

Animal agriculture is responsible for 14.5% of all human-caused climate change, 70% of all global surface and groundwater use, 80% of global agricultural land use, 82% of antibiotic use in Canada, and 40% of global methane emissions.

Furthermore, eating styles that are plant-rich have evidence-based, significant, and multi-system health benefits including:

- reduction of cardiovascular disease mortality and morbidity
- reduced angina symptoms
- reduced blood pressure and need for medication
- reduced diabetic A1c and need for DM medications
- cancer prevention and reduced mortality
- reduced depression and anxiety
- Improved gastrointestinal health
- reduced risk and progression of chronic kidney disease
- reduced risk and progression of non alcoholic fatty liver disease
- reduced overall mortality.

Implementation tips:

1. Put up a poster that reviews planetary and patient benefits. PDF is available here.
2. Advise patients of Patient-facing online sessions led by Registered Dietitians (free, self referral and open to anyone in Canada) flyer is here
3. Show waiting room video "What's for Dinner?"
4. Keep a Quick Reference Talking Points Guide in exam room.
5. Prescribe plants using EMR embeddable Rx.
6. Watch a webinar.
7. Review a background guide.

Hamilton Family Health Team
Green Initiative

Transitioning to plant rich eating is one of the most effective strategies we can adopt globally to reduce climate impact. As a co-benefit, advising your patients to eat plant-rich will directly and significantly improve their health.

References: [85-89]

4.7 ACTIVE TRANSPORT

JÉRÔME RIBESSE (MONTREAL)

The GHG emissions report of the CISSS de Laval (Quebec) estimated that transportation accounted for just under 40% of the establishment's GHG emissions. Knowing this, it is imperative to take concrete action to reduce the GHGs emitted by travel, both for employees, patients and visitors. This offers the additional health benefits of active transportation, which are well established.

The goal is to offer the opportunities to abandon solo driving in favour of carpooling, public transit or even better, active transportation (e.g., walking, or cycling). Although electric vehicles contribute to decarbonization, these vehicles can still contribute to traffic congestion as well as motor vehicle injuries without any of the financial and health benefits of active transportation.

Telemedicine can also play a major role to decrease transportation GHG emissions as some intervention do not require meeting the patient in-person. For example, supporting patients who wish to quit smoking can be done by telephone or video conferencing.

Simple implementation Tips:

1. Be a role model by cycling or walking to work. If you live too far away, consider travelling part of the trip by car and the rest by active transportation or come to work by bike half of the time.
2. Encourage your patients to use active transportation through a nature prescription (https://www.prescri-nature.ca/).
3. Organize a dedicated active transportation day or week with your employees.
4. Install a secure bike rack or other storage facilities.
5. Buy a bicycle to cycle to home visits.

SYNERGIE SANTÉ ENVIRONNEMENT

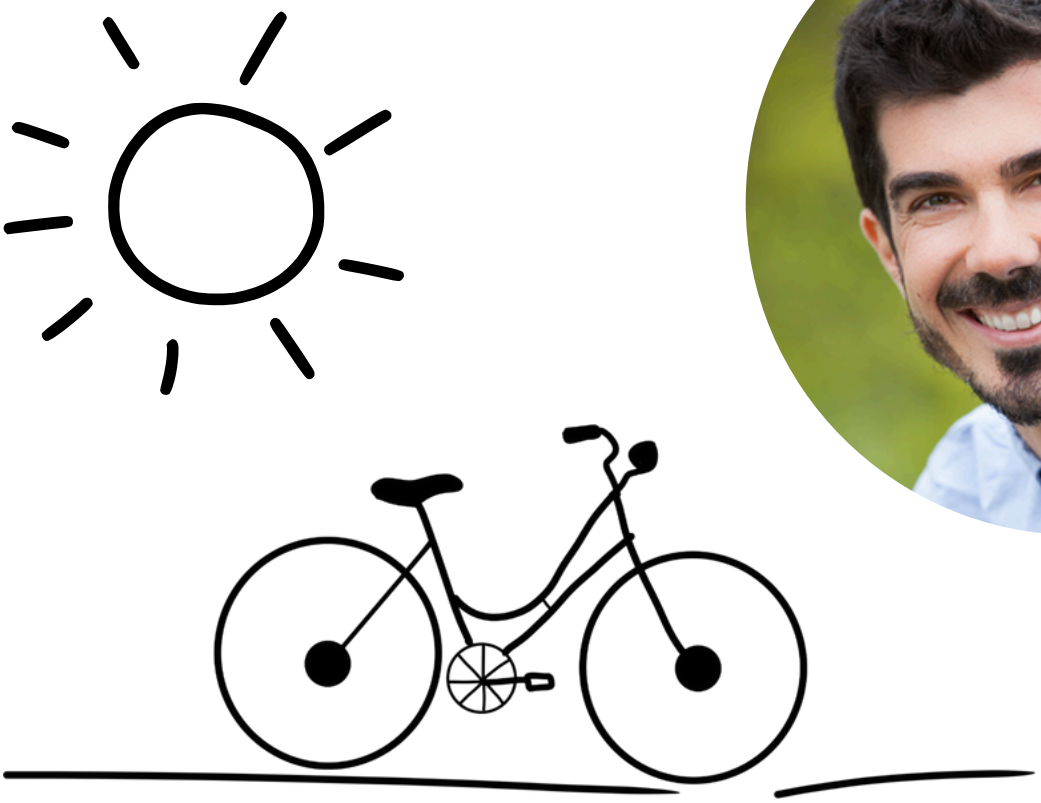
4.7 ACTIVE TRANSPORT

Advanced implementation Tips:

1. Install electric vehicle charging stations.
2. Install showers and changing rooms for employees when arriving/leaving work.
3. Develop a travel management plan for your employees.
4. Subsidize monthly public transit passes for your employees.
5. Organize a “shuttle service" between the nearest public transit station and your offices for employees if the last leg of the journey is a barrier.
6. Demand safer streets in your community, including crosswalks and bike lanes.
7. If your city has a bike share system, have racks installed near your clinic to make it easier for your employees and patients to use the system.

Active transportation fully supports both the prevention of illnesses and reduction GHG emissions related to travel. In order to support active transportation for employees and patients, it is necessary to develop an effective change management plant and implement multiple strategies. Any work must be supported by ongoing continuous quality improvement to ensure effectiveness.

References: [90,91]



4.8 COMMUNITY EDUCATION

JOSALYN RADCLIFFE (WATERLOO)

Healthcare providers are trusted professionals and our voices matter in the community. We have the evidence and experience to connect social and environmental factors and the well-being of individuals, families, and communities. Moreover, change requires the engagement of the community as a whole; educating your patients and community about environmental issues can support a movement that urgently needs momentum.

In-office Strategies:

1. Provide accessible reading material in office (on screens or on coffee tables) about environmental threats to health and ways for the public to get prepared and engaged (e.g. contact information for local politicians, neighbourhood associations and community groups, local emergency planning workshops).
2. Draw attention to the ways your office is turning 'green'. Highlight your actions on your website, and waiting room screen or bulletin boards. Don't forget to include why you're taking these actions. Stay equity focused and ensure that you are also highlighting any services you offer to your patient community to support mitigation and adaptation (bus tickets, bike racks, water refilling, cooling areas, etc.).
3. Organize small in-house workshops targeted to the most vulnerable patients and discuss essential adaptation strategies such as ways to stay safely cool without air conditioning and warm during power outages, creating emergency plans, safe food practices and opportunities or referrals to increase food, housing, and financial security.

4.8 COMMUNITY EDUCATION

Beyond the Office Strategies:

1. Get political! Getting involved in your community. Delegate, meet, or write to your local council representatives or provincial/territorial/federal politicians in support of actions on areas such as active transportation, clean energy, sustainable food systems, housing standards for heating and cooling, or emergency preparedness. Include clear ‘asks’ of council supported by evidence and don’t forget to include your role as a health professional to advocate for public safety and well-being through these acts of government.
2. Team up! Get involved in advocacy groups and coalitions to leverage collective energy in larger scale campaigns to educate the public on the current ecological crises and what needs to happen to address them. Look for others with similar interests within your profession or field and partner for broader awareness and education. Put it on paper (or online). Bring your voice to local media through op-eds or opinion pieces. Become active on social media and use hashtags to amplify your messages.

Meaningful change to address the intersecting ecological and social determinants of health requires participation from all parts of our community. One of the most important steps you can take is using your knowledge and expertise to build community awareness and capacity on the issues affecting them now and into the future. By doing so, you launch far beyond your ‘green office’ and help to build green communities and a healthier planet for all.

References: [92-94]

5.0 LEADERSHIP AND ADVOCACY

As we work toward change, it is important to consider justice, equity, diversity, and inclusion as it relates to climate change. The impact climate change has on a given population is extremely disproportionate to the contribution that population has made to the growing crisis. Responsible for approximately 92% of historic emissions, higher income nations continue to experience little consequence while it is estimated that lower income nations will see climate related deaths of upwards to 2 million people per year by 2030.

Entire cultures and countless animal species have lost their way of life and homes to climate change already. Declining animal populations and land clearing in Canada disproportionately impacts Indigenous People who sustain themselves off the land. Indigenous People already have reduced access to clean drinking water and climate change threatens to widen that gap. Around the world much deforested land is used to grow enough food for approximately 70 billion livestock. The majority of this livestock feeds richer nations while 29% of the world's human population lives with some level of food scarcity and 811 million people experience chronic hunger.

Environmental and social justice comprise global health meaning physicians are uniquely positioned as advocates, role models, and change agents for climate reform.

Stephanie Atkinson

Chair, CAPE Newfoundland Regional Chapter

5.1 CLINICIAN INVOLVEMENT MAKES THE DIFFERENCE

1. Drive the issue of greening your clinic home to your staff or administration -for health reasons!

2. Bolster the attempts of professionals, managers and directors to improve their impacts by public or written support (in lounges or newsletters).

3. Put your money where your mouth is: Convince the suppliers of your healthcare products or services that you will purchase environmentally responsible services and products. Ask about them repeatedly. Divest from polluting and climate changing companies (e.g. mining, meat producing and fossil fuel corporations).

4. Contact higher level decision makers (in your institution, community or province) to discuss your needs and concerns regarding greening your clinic. As a rule, they want to hear what physicians think is important. If your clinic needs the system to change to be sustainable, others do too.

5. Lead by example: Inspire younger clinicians about the importance of decreasing environmental impacts across society, including healthcare. Engage other offices in your building, and share your greening initiatives with your patients. When physicians take action on environmental stewardship, they can inspire others in their community to do the same.

6. Get informed about the important environmental issues facing society today, and ways that clinicians can make a difference. Consider supporting or joining the Canadian Coalition for Green Healthcare, the Canadian Association of Physicians for the Environment, CASCADES, BC Green care, PEACH health Ontario, or Synergie Santé Environment.

Clinicians are essential in leading and validating green healthcare endeavors. Whether through prescribing less medications, greening their offices, publishing seminal green healthcare documents, or negotiating with their medical board to begin a full scale environmental management system: when clinicians pay attention, things happen...fast.

5.2 EDUCATING STUDENTS AND RESIDENTS ON SUSTAINABILITY

SEHJAL BHARGAVA (SASKATOON)
HUSEIN MOLOO (OTTAWA)

The health sector is a major contributor to waste - both physical (such as medical waste) and with regards to emissions (from heating, cooling, air filtration etc.). An increased awareness of climate change and contribution of healthcare to the problem has led to a greater understanding of the issue, and an increased use of innovation and creativity to address it. With an increasing emphasis on sustainability in healthcare we have a fantastic opportunity to model environmental stewardship in healthcare and model the change we hope to see at greater scales and across sectors. Additionally, there is a responsibility to educate the upcoming generations of physicians to be leaders in social accountability and leadership. This section of the toolkit focuses on ways to educate residents and medical students about sustainability and sustainable medical practices in a clinical environment. It is also, essentially, a summary of this toolkit!

Easy and visible ways to green your office:

1. Share what you know about Choosing Wisely practices for your specialty.
2. Deprescribe unnecessary medications - this is safer for the patient and for the planet!
3. Encourage patients to follow plant-based diets.
4. Prescribe time in nature and other social medicine based interventions. Helping patients connect to nature and communities and realize their health benefits are low carbon ways to improve health, and can help motivate people to do things to protect nature.
5. Educate learners on medication recycling programs and ways to safely dispose of medical waste such as lancets and old prescriptions.
6. Assess your supply chain and make strategic changes that are easy to do but largely reduce the impact on the environment.

Tips for those interested in going beyond the Office:

1. Be a model green citizen.
2. Take the office greening principles to other facilities like long term care, or your local hospital.
3. Teach rounds on sustainability practices, successes, best practices in healthcare.
4. You are a trusted voice. Be a community leader!

5.2 EDUCATING STUDENTS AND RESIDENTS ON SUSTAINABILITY

Consider building your own Green Office goals and practices and try to incorporate them into training medical students and residents, and into future projects they may take on.

Demonstrating social accountability and consideration toward the environmental impact of healthcare can help inspire the next generation of healthcare professionals to make even larger scale impacts on climate and health in the work they go on to do.

References: [95-97]

PEACH + CCGHC LEADERSHIP GUIDES

The PEACH and CCGHC leadership guides provides an overview of some of the key steps and actions that senior leaders can initiate and support for their hospital to move towards a climate-resilient, carbon net-zero, and environmentally sustainable health system. Rather than a comprehensive overview, this document is intended to be a primer to help hospitals with their transition to a greener system: from those starting their journey to those looking for new ideas to implement within an already robust sustainable system.

CASCADES LEADERSHIP TOOLKIT

Embedding sustainability into existing interventions such as readiness assessments and quality improvement can help support and scale up efforts toward a systems transformation to climate resilient, low carbon and sustainable care.

This Playbook provides ideas, examples and resources for health systems to complete a high-level readiness assessment of their healthcare setting and identify opportunities to increase the visibility and impact of sustainability efforts.

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THE BUILDING

3.5.1
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5.1
Taken from **Green Office Toolkit** - version 1

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