Climate Change Toolkit for Health Professionals

Factsheet: Taking Action on Climate Change at Health Facilities

Health Care Facilities (HCFs) & Climate Change

Climate-related events are already impacting health care facilities in Canada. Warnings have been issued by a few sources that health systems around the world are not prepared to manage the health impacts of climate change. In addition, many agencies have identified the need to increase the resiliency and sustainability of health care facilities and health infrastructure. The following are examples of initiatives, projects, policies and programs which can be promoted and undertaken to help health care facilities become more sustainable and resilient in adapting to anticipated climate-related impacts.

Climate-related events can affect the delivery of health care services at health care facilities in many ways. Multiple impacts often can occur simultaneously. They can:

1. Affect the physical, emotional and mental health of health care workers;
2. Damage the building envelope, internal infrastructure, electrical and mechanical systems including heating, ventilation and air conditioning systems;
3. Reduce access to critical support services such as transportation, power, water supply, and tele-communications;
4. Reduce access to non-medical supplies and services such as food, linen and site cleaning, waste disposal and storage services, data management systems and patient record systems, and sterilization services;
5. Reduce access to medical supplies and products including local sources of products such as blood service and globally manufactured medical products sourced from areas affected by climate-related events;
6. Reduce access to health and clinical services during temporary closure periods, delay surgical treatment, and delay access to outpatient services such as dialysis;
7. Increase emergency room visits and hospital admissions for impacts such as heat stress, frostbite, respiratory distress, exposure to climate-sensitive diseases, physical and psychological trauma, and patient transfers from other HCFs experiencing service disruptions;
8. Activate the health care facility emergency plan; and
9. Increase costs.
10. Health care facilities are both impacted by, and contribute to, climate change but have to remain operational when emergencies strike.

Resilience, Vulnerability & Adaptation Assessments

Tools to help health care facilities become more resilient, assess their vulnerability and build adaptations include:

HCF Climate Change Resiliency Assessment

The Health Care Facility Climate Change

Resiliency Checklist can be used by health care facility staff to assess their resiliency to climate change. The checklist includes questions about vulnerabilities which could happen across the HCF such as: emergency management, facilities management, health care services including clinical areas and supply chain management. The results can be used to identify areas that need to be strengthened.

HCF Vulnerability wAssessments

Conducting health care facility vulnerability assessments focuses on identifying potentially vulnerable infrastructure as a result of climate-related impacts, and how that infrastructure could be expected respond to anticipated climate changes. This information could be used to help senior leadership and others make more informed decisions in preparing for climate-related events now, and in the future, over the expected lifespan of the facility

Vulnerability & Adaptation Assessments (V&A)

From a public health perspective, vulnerability and adaptation (V&A) assessments can further examine population-level vulnerabilities to climate change in the community. These vulnerability assessments can be used to identify vulnerable populations and map the location of potential health risks, employing climate data to inform adaptation and planning, in which health care facility staff should take part. The HCF is critically important, especially due to their reliance on municipal infrastructure such as transportation, power, and water and wastewater services with the potential to be impacted during climate-related events.

Stress Testing

Climate and health "stress tests" can be undertaken to gain further information on potentially disruptive climate-related shocks and stresses that may otherwise be missed in a V&A assessment. Stress testing uses the development of hypothetical scenarios to understand cases where the health system would be stressed to such a degree that it might not be able to provide services to the public, providing insights from a new perspective.

Sustainability & Resiliency Measures At HCFs

Sustainability and resiliency measures are inextricably linked. Initiatives which are contributing to sustainability will likely also improve resiliency. For example, by using less energy, a facility can remain operational longer should power outages occur because of the finite stand-by energy available at that time.

There are many challenges to implementing new initiatives. Health care practitioners have limited time and resources, are faced with fiscal restraints, and new initiatives have to compete with other priorities. Factors that enable the success of new initiatives include the existence of a regulatory backdrop, leadership making it a priority, having an action plan, the availability of resources, and co-benefits for the health system.

Canadian Health Sector - GHGs

The GHGs emitted from Canada's health care life cycle (directly and indirectly through their supply chain) represented an estimated 4.6% of the national total in

2015. However, GHG emissions in the health sector are increasing at double the rate of the national average - 10% compared to 5% between the years 2009 to 2015.

Given its increasing contribution, targeted support programs to reduce emissions in the health sector could play an important role in national climate change mitigation efforts. Figure 1 identifies the economic sectors which contribute to health sector GHG emissions. The energy sector is the largest contributor.

Support Programs at HCFs

On-site sustainability support initiatives can include establishing green committees or teams to work across an HCF. A larger scale sustainability and resiliency support office for Canadian HCFs could be built on the Sustainable Development Unit model implemented effectively by the National Health Services in England. It could help to accelerate GHG reductions in the health sector, and work towards improving environmental, social, and financial aspects of health care services delivery.

Energy

HCFs have the highest energy use intensity (2.45 Gigajoules/m^2) of all commercial and institutional buildings in Canada. Despite accounting for only 0.2% of commercial and institutional buildings, hospitals account for 4.1% of total energy used by the building sector. Building energy use is also a significant contributor to GHG emissions classified as Scope 1 (onsite energy, fleet vehicles, waste anesthetic cases, and refrigerants) and Scope 2 (purchased electricity and purchased steam) at the HCF. Traditional initiatives to assist in energy reduction include annual energy and greenhouse gas reporting requirements, use of benchmarking tools, and provision of energy manager programs with access to incentives. More progressive initiatives for Canadian health care facilities include establishing energy and greenhouse gas reduction targets for the health care sector, including increased use of renewable energy, and mandatory GHG emission audits.

Inhalation Anesthetic Gases

The primary inhalation anesthetic gases used in health care facilities are Desflurane, Isoflurane, Sevoflurane and nitrous oxide, which can also act as a carrier gas. These anesthetics are potent GHGs, with over 95% of the gas that is administered to patients being directly vented into the environment during use, owing to their low metabolization rates. In England, nitrous oxide was identified as the highest volume gas of all the anesthetics used, and therefore the largest component of GHGs emitted as anesthetics, making it a prime target for tracking and reduction. A study found that anesthetic GHGs could be reduced by: utilizing low fresh gas flows; avoiding high impact inhaled anesthetics like Desflurane and nitrous oxide; considering the use of intravenous and regional techniques; investing in Waste Anesthetic Gas trapping for volatiles only and Waste Anesthetic Gas destruction for all inhaled anesthetics, including nitrous oxide, in terms of the technology to update anesthesia machines.

Sustainable Procurement

In Canada the large majority (90%) of GHGs in the health sector originate upstream from the health care facilities. With the majority of GHGs coming from the supply chain sources, waste recycling will not

significantly reduce a facility's carbon footprint, and so waste reduction approaches will need to take precedence. By adopting sustainable procurement policies, strategies, and practices, the health sector and health care facilities have an opportunity to spearhead a significant shift in the manufacturing sector to develop greener products throughout their life-cycles.

Pharmaceuticals & Medical Devices

A GHG analysis performed on the Canadian health sector identified pharmaceuticals as a significant source of GHGs for the whole health sector, based on dollars spent. In England, a carbon footprint analysis identified pharmaceuticals (21%) and medical devices (11%) as carbon 'hotspots', and the Sustainable Development Unit created a list of the top 20 pharmaceuticals with high GHGs, accounting for 60% of the carbon footprint in this area. These pharmaceuticals have been targeted for reductions. Optimization of medical device use can begin with an examination of where many unused medical devices are discarded, often in operating rooms and surgical theatres, and explore opportunities for medical device reprocessing

Transportation

Transport systems are key resources for HCFs which rely heavily on these networks to move supplies, contractors, patients, staff, laboratory samples, and wastes. For some facilities, transportation systems are required for offsite services such as laundry, sterilization, and the preparation of food. Climate-related events such as floods, severe storms, and wildfires can restrict access to transportation services, with the potential to disrupt the delivery of critical health care. Alternative transportation initiatives which the HCFs could promote to reduce GHGs include walking, cycling, public transit, fleets employing electric or otherwise 'low emission' vehicles, and contracting suppliers who are committed to green forms of transportation. Initiatives to ensure functional transportation routes in the event of a climate-related disaster should be undertaken through adaptation planning with the community.

Telemedicine & Tele-health

Telemedicine and tele-health have been identified as excellent opportunities to reduce GHGs from health sector travel. For distances over a few kilometers, telemedicine appointments can result in a 40- to 70-fold decrease in GHGs compared to transportation in a single-occupancy vehicle.

Food

Canadian HCFs spend more than $4 billion year on food and an estimated 50% of food is discarded. HCF nutrition departments could focus on plant-based diets from sustainable and local sources which would help reduce GHGs and enhance resilience both at HCF and within the community.

Leadership

A report by Miller et al 2017 concluded that while health system leaders are somewhat aware of climate change, few see it as an important factor in their work or their patients' health. This lack of awareness presents an opportunity for action to raise awareness and build climate leadership within the health system in Canada.

NOTE: References for this factsheet can be found in Module 6 of CAPE's Climate Change Toolkit for Health Professionals.