

Irish Doctors For the Environment

Submission: Climate Action Plan 2021

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Definitions

Healthcare facilities: Healthcare facilities include hospitals, primary, secondary and tertiary centres and community practices (ie. GPs, pharmacies, community centres, physio etc)

Greenhouse Gas (GHG) Protocol: establishes comprehensive global standardised frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions. It was established by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). GHG Protocol works with governments, industry associations, NGOs, businesses and other organizations.

Paris Agreement The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

Abbreviations

American Chemical Society Green Chemistry Institute (ACS-GCI)

Building Energy Rating (BER)

Building-Integrated Photovoltaic (BIPV)

CO₂ equivalent (CO₂e)

Combined Cooling, Heat and Power (CCHP)

Computerized Clinical Decision Support Systems (CCDSS)

DUMP (Disposal of Unused Medicines Properly)

European Union (EU)

Framework Convention on Tobacco Control (FCTC)

Greenhouse Gases (GHG)

Green Healthcare Programme (GHCP)

Green Public Procurement (GPP)

Healthcare Without Harm (HCWH)

Heating Ventilation and Air Conditioning (HVAC)

Inhalation Anaesthetic Gases (IAGs)

Life Cycle Assessment (LCA)

Marginal Abatement Cost (MAC)

Metered Dose Inhalers (MDI)

Most Economically Advantageous Tender (MEAT)

National Health Sustainability Office (NHSO)

Personal Protection Equipment (PPE)

Sustainable Energy Authority of Ireland (SEAI)

Introduction

Key Recommendations:

The Irish Healthcare sector has a responsibility to:

1. Monitor and report the carbon footprint of the healthcare sector
2. Develop a roadmap to net zero healthcare
3. Develop a regulatory framework to support healthcare meeting its targets towards net zero healthcare.

“The world’s health sector facilities churn out CO2. This is perhaps ironic — as medical professionals our commitment is to ‘first, do no harm.’ Places of healing should be leading the way, not contributing to the burden of disease.”

- *Tedros Adhanom Ghebreyesus, Director General, World Health Organization*

The Lancet has warned that climate change represents the largest and most prolonged threat to global health ever described. ⁽⁴⁾

Globally there is a move to decarbonise healthcare, with reports from international organisations Healthcare without Harm and the World Bank demonstrating that if global healthcare were a country, it would be the fifth biggest emitter⁽¹⁻²⁾ of carbon dioxide on the planet. Healthcare is estimated to be 4.4% of Ireland’s carbon emissions. ⁽³⁾

Ireland is a major emitter of healthcare emissions (0.5-1.0t per capita). ⁽³⁾ Healthcare in Ireland is responsible for 2.8Mt of CO2 per annum. This is equivalent to the total CO2 emissions of Togo which has approximately double the population of Ireland.

Healthcare emissions can be divided into three scopes using the greenhouse gas protocol. Scope 1 is direct emissions from onsite facilities, scope 2 indirect emissions from purchased energy and scope 3 emissions through the production, transport, and disposal of goods and services, such as pharmaceuticals and other chemicals, food and agricultural products, medical devices, hospital equipment, and instruments (1).

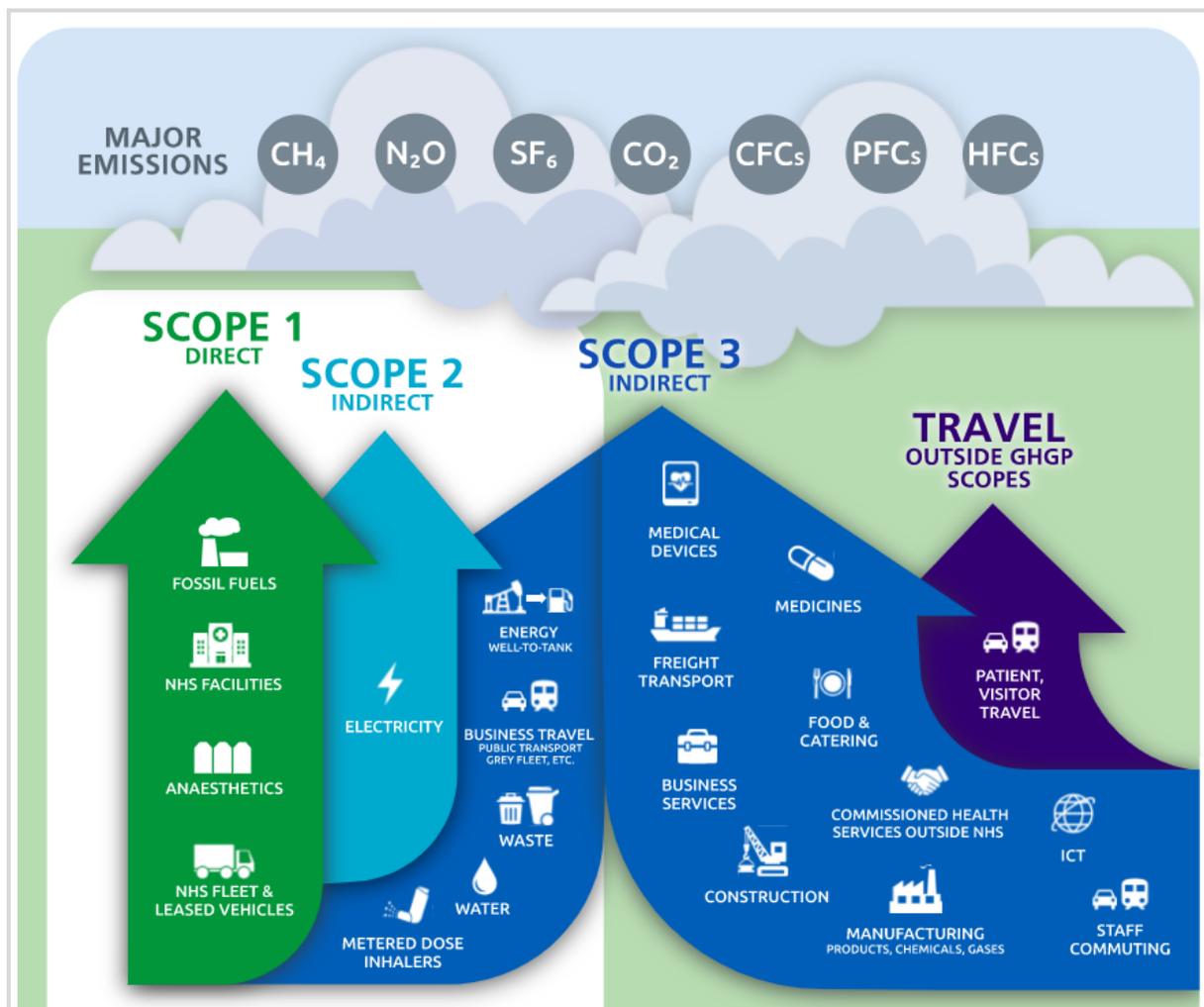


Figure. Scopes of greenhouse gases reduction as per Greenhouse Gas Protocol (picture adapted from NHS report *Delivering a Net Zero NHS*, October 2020). GHGP scope 1: Direct emissions from owned or directly controlled sources, on site • GHGP scope 2: Indirect emissions from the generation of purchased energy, mostly electricity • GHGP scope 3: All other indirect emissions that occur in producing and transporting goods and services, including the full supply chain.

Currently in Ireland we are not monitoring total healthcare emissions. On a national scale, some of healthcare emissions are considered to be included in other sectors like transport or industry. This strategy does not accurately account for the contribution of healthcare and does not support measures to decarbonising healthcare

Healthcare as a leader, The case for addressing healthcare emissions head on

The NHS is proving to be a leader in this field by committing to net zero healthcare emissions by 2040.⁽⁵⁾ The NHS has been monitoring and reducing its carbon footprint since 2007. Over the subsequent ten years, the NHS has reduced its carbon emissions by 18.5%, despite a 27% increase in activity. This has resulted in cost savings of £90 million in 2017 alone.⁽⁶⁾

In Ireland, scope 3 emissions account for 78% of healthcare emissions.⁽³⁾ Healthcare in Ireland represents 9.8% of GDP reflecting the significant purchasing power of healthcare influence the supply chain and address scope 3 emissions. There is real opportunity for large scale reductions in healthcare emissions in Ireland through our models of care, procurement and upgrading of our facilities. This opportunity will be lost if healthcare’s emissions continue to be disseminated through other sectors.

Without an overall plan for healthcare emissions, progress will be glacially slow. Pioneering projects will remain isolated examples that fail to progress to healthcare wide roll out. Without a framework and specific targets, it will not be possible to address the 61% of emissions generated internationally by our healthcare sector.⁽³⁾

Ireland’s healthcare urgently requires a baseline of carbon emissions, a national roadmap, a detailed action plan and a sectoral ceiling. Without this healthcare emissions will continue to rise^(8,9) and there will be no incentive for meaningful change.

As the climate crisis is a health crisis, all sectoral plans to reduce emissions are health policies. Healthcare has ethical, economic, and political clout to influence and accelerate climate action in other sectors of society but only if its own house is in order. There are significant health co-benefits to climate action, including active transport, diet, improved air quality etc. In order to credibly work with other sectors on reducing emissions, healthcare must step up and be accountable for its own carbon emissions.

In this submission, Irish Doctors for the Environment have addressed the seven high impact actions as laid out in the healthcare without harm global roadmap to healthcare decarbonisation.

Acting on emissions: Seven high-impact actions for health care decarbonization

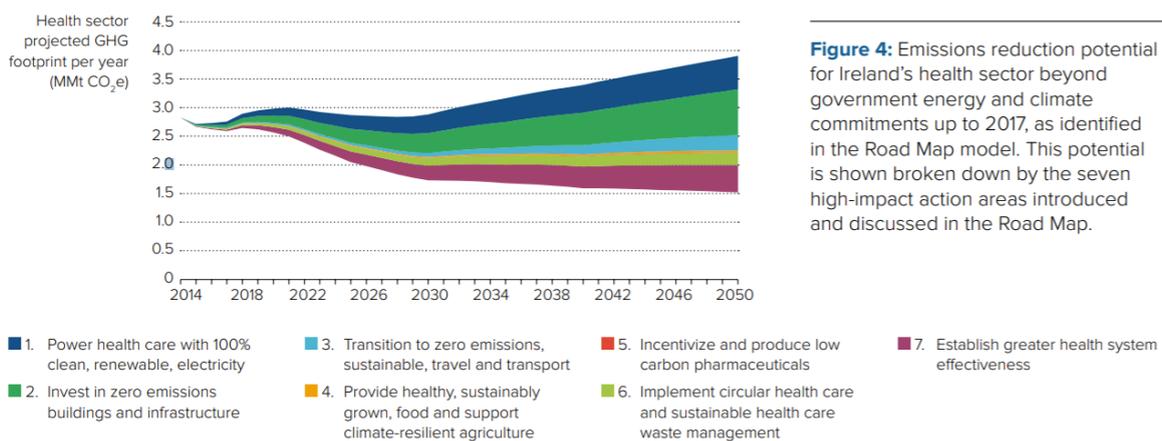


Figure 4: Emissions reduction potential for Ireland’s health sector beyond government energy and climate commitments up to 2017, as identified in the Road Map model. This potential is shown broken down by the seven high-impact action areas introduced and discussed in the Road Map.

Figure 1. Emission reduction potential for Ireland’s healthcare sector. Healthcare Without Harm Global Roadmap for Healthcare Decarbonisation; April 2021 (3).

Section 1. Power Healthcare with 100% clean renewable energy

Situation

Energy is a priority for hospital management for financial savings. Evaluation of energy power and consumption yields short and long term financial savings, along with carbon footprint rewards. Leveraged buying power is an important tool in ensuring prioritisation of renewable sources to power healthcare. This is particularly relevant where technology can allow data flow and analysis to identify where and when power requirements exist across multiple healthcare institutions and adapt accordingly. This is increasingly possible as the contribution of network-based renewable source electricity in Ireland approaches 30%.

The Nearly Zero Energy Building Standards have been applied to the construction or renovation of buildings by the Sustainable Energy Authority of Ireland (SEAI) (1). They stipulate that energy requirements should be covered to a very significant extent by energy from renewable sources, including energy produced on-site or nearby. In non-domestic buildings, renewable sources must provide 20% of primary energy use, or 10-20% if using A3 Building Energy Rating (BER) (1).

Healthcare institutions, particularly modern primary care centres and secondary care facilities are frequently large buildings with large rooftop footprints. These are ideal in many cases for solar panels, particularly where, unlike domestic dwellings, energy consumption is greatest during daylight hours. This can include building-integrated photovoltaic (BIPV) materials that are incorporated into construction of buildings to generate renewable electricity. In contrast to the standard horizontal axis wind turbine present in our windfarms, vertical axis turbines are simple designs, can take advantage of the building characteristics and produce less noise than generators or traditional wind turbines (2). These innovations assimilate well with existing back-up power requirements where most healthcare institutions are required to have battery capacity.

Where existing structures rely heavily on fossil fuels, particularly for heating, trigeneration or combined cooling, heat and power (CCHP) refers to the simultaneous generation of electricity and useful heating and cooling from the combustion of a fuel or a solar heat collector. The precursor of this, co-generation (heat and power), is now considered less useful as most modern Irish industrial size buildings are designed to preferentially achieve cooling over heating in line with current global warming predictions.

Finally, choices on how healthcare is powered rely on education and awareness to ensure a culture change that acknowledges the severe and existential challenges in relation to climate change. Behaviour by the people who work in healthcare is significantly influenced by key policy makers. Thus to effect change, it is critical to engage with executive level management.

Recommended Actions:

1. Engagement with executive level management on renewable energy contracts
2. Prioritise renewable energy when renewing energy contracts at all healthcare facilities, with targets for renewable energy use.
3. Hospital construction projects are typically long, therefore advocate for renewable energy supplies are in place prior to beginning of construction works
4. Net zero construction in healthcare: With further development of EU Buildings Directives, requirements are significantly increased overall to 100% with a focus on self-generated and locally sourced renewable energy and incremental targets in line with the Paris Agreement
5. Funding for solar panels on all suitable areas of healthcare facilities across Ireland

Examples:

1. Odense University Hospital in Denmark built their solar panel park before starting construction on the hospital to offset the high carbon footprint of construction (4).
2. The Royal Children's Hospital in Melbourne on-site trigeneration plant generates an electrical contribution which offsets the need for the equivalent capacity in much less efficient grid power and effectively reduces the electrical demand by 25% (5).
3. In Italy, Parma's university hospital, the trigeneration plant covers over 80% of the hospital's electricity requirements (6), similarly in New Jersey, USA, Adelaide, Australia (7)(8).
4. There are many international examples of tall buildings where the significant height takes advantage of faster and less turbulent wind, allowing wind turbines to be placed on the rooftops. The EU-funded Horizon 2020 EOLI FPS project has addressed this challenge successfully (3).

Section 2: Invest in zero emission buildings & infrastructure

1. Meeting Energy Efficiency Standards at Irish Hospitals

There are significant opportunities to improve the energy efficiency of Irish hospitals and primary healthcare. In 2018, more than half of Irish hospitals and primary healthcare buildings had a BER certificate lower than C; only 6% have achieved the highest BER rating A, while 22% were at the very bottom of the scale, with BER ratings F & G (1). Almost half of healthcare's global carbon emission reductions required by 2050 can be achieved by investing in zero-carbon buildings and infrastructure (3).

According to the SEAI report, no renewable energy was used in powering Ireland's hospitals in 2019 (2). Ireland's output of greenhouse gasses from Scope 1 (on-site) and from healthcare construction is higher than a global mean (3). As evidenced by the Sustainable Energy Authority of Ireland's report, some good work is being done, but a lot more to do remains: the HSE and Acute Hospitals are currently at 26% energy efficiency improvement against a target of 33% (2).

2. Opportunities for green space landscape within Irish Hospitals

While healing and recovery benefits of green spaces are long known—it is 40 years since the seminal paper was published on how rooms with natural views could enhance postoperative recovery, shortening both hospital stays, and reducing the analgesia requirements— these benefits remain underused in Irish hospitals, where landscaping and gardening is not always recognised as a priority (4). While some hospitals are built on large swathes of land, their outside landscape remains widely unused for patient or staff respite moments. Some inner-city hospitals, on the other hand, are often highly functional concrete jungles. As recent research confirms a beneficial influence of greenspace on a wide range of health outcomes, further planning of green spaces in hospitals could yield benefits like promotion of patients' recuperation and avoidance of staff burnout (5). Green roofs could be a solution in space-poor city hospitals and primary health centres by providing biodiversity oases for insects and birds, providing insulation, and improving urban air quality.

Examples

1. Radboud Medical Centre in Amsterdam is aiming to become energy-neutral by 2030 and zero-carbon by 2050 by implementing a new build which is 20% more energy efficient than the rest of the campus, reducing the space taken from 450000 m² to 380 000 m², using biomass materials wherever possible and reducing pharmaceutical waste in sewage (6).
2. Newcastle Hospital in the UK declared a climate emergency in 2019. It has resulted in a reduction of their carbon footprint by 5%. In terms of building and infrastructure, their 2020-2025 strategy foresees providing healthy, sustainable and biodiverse spaces for patients, staff and visitors by including opportunities for sustainability innovations in all new builds and refurbishments based on recognised standards, building climate adaptation and resilience into management of existing estate, as well as all new builds and refurbishments and expanding green space and enhancement of the biodiversity (7).
3. The Capital Region of Denmark is managing the green transition of its hospitals in part by covering hospital roofs with solar panels for direct use, local storage and energy sale into the national grid (8).
4. Some green space initiatives are beginning across Ireland: the green roof and patient rooms surrounding gardens of the Mater Hospital is a welcome development, as are the green roof over the ED in Limerick, several tree planting initiatives by various charities in Irish hospitals and food planting Healthy Garden Initiative in Merlin Park, Galway and the green areas surrounding Cavan General were highlighted as examples (9).

Recommended actions

The overall goal should be to ensure every health care building, health product manufacturing facility, and their infrastructure is used effectively, is energy efficient, provides zero emissions, and is climate resilient.

1. Building infrastructure

1. Ensure effective and optimised building utilisation, while incorporating designs and locations that promote reusing materials and creating spaces that are multifunctional.

2. Support the adoption of telemedicine and other processes (like closer-to-home care envisioned in Sláintecare and a focus on preventative interventions) to reduce demand for large, resource-intensive healthcare facilities.
3. Ensure staff responsible for procuring the design and construction of buildings and infrastructure are trained in sustainability.
4. Ensure the location of buildings promotes low-carbon transportation.
5. Seek building designs that are zero emissions, using green building accreditation tools and standards.
6. Site and orient buildings to optimise solar shading and natural ventilation.
7. Maximise energy efficiency by designing for optimized daylighting, natural and mixed mode ventilation, passive solar heating and cooling strategies, and reflective roofing or cool roofs.
8. Maximise green spaces and natural solutions to enhance cooling potential and rainwater management.
9. Investment in low- or zero-emissions cold chain infrastructure, including vaccine storage and distribution facilities.
10. Investment in low- or zero-carbon information and communications technology infrastructure, including storage, efficient devices, and back up mechanisms.
11. Design for and install onsite renewable electricity as an integrated feature of healthcare facilities.
12. Ensure resilience is improved when considering building location, building materials, retrofit, and refurbishment projects
13. Reutilise or re-purpose building materials like steel girders in refurbishment projects.

2. Procurement within infrastructure:

1. Employ sustainable procurement policies, practices, and guidance
2. Procure energy efficient building materials with low- or zero-embodied carbon and/or locally produced or reused materials in all new construction and refurbishments.
3. Procure high efficiency heating ventilation and air conditioning (HVAC) equipment, electric lighting, ICT, and other energy efficient equipment (including cooling equipment that does not contain potent global warming F-gases, like HFCs and HCFCs).
4. Purchase appropriate solar, wind, and small-scale hydroelectric technology, as well as battery technology for microgrid back up for onsite renewable electricity generation and resilience.
5. Plan circular procurement by working with supply chain partners to adopt new circular economy business models, which align commercial incentives with

long-lasting, low-impact, reusable, and upgradeable building systems and components

6. Design and develop zero-carbon approaches to construction and refurbishments in healthcare.
7. Adopt a circular materials strategy, including materials that are healthy and safe, reused and reusable, recycled and recyclable, low-embodied carbon, and, where possible, bio-based and thereby renewable.
8. Choose circular design principles, including designing out waste, designing for net positive energy and water use, designing for offsite manufacturing, designing for deconstruction, designing for flexibility and adaptability, designing for reuse and recovery, and designing for material optimisation.
9. Lead the industry into higher ambition for decarbonisation with innovative approaches to low- or zero-emissions building technologies.

3. Wider economy and society:

1. Leverage healthcare's purchasing power in the construction industry to systematically drive carbon reduction through production processes, the reuse of building materials, and the development of sustainable and/or reusable materials.
2. Collaborate with local communities and stakeholders to ensure health facilities enable low carbon lifestyles in adjacent neighbourhoods (e.g., be an anchor location for public transport, waste collection, consolidation, and construction material reuse and redistribution).
3. Review the opportunities for the development of green spaces and natural environments in and around health facilities and provide funding.
4. Foster a sharing economy by making underused spaces available outside of peak hours and accessible for community use, while providing spaces for car club parking and recharging and an anchor point for district heating/cooling systems.

Section 3. Transitioning to zero emissions sustainable travel and transport

Situation: Health impacts of active travel

Active travel is recognised in the literature as a climate change mitigation measure with major co-benefits to health including reduced risk of diabetes, ischaemic heart disease, stroke and obesity (Haines, et al., 2006). Air Quality, priority facilitating active travel. With move to EV secondary recognising that ev will continue to contribute to air pollution from tyres and break systems [ref ref]

Transport within Healthcare Sector

Healthcare is heavily reliant on transport including patients, staff, consumables and equipment. Taxis in particular cost healthcare over €70k per day [9]. The gains in renewable energy are visible on our roads with increases in electric vehicles, and in particular, public sectors prioritising electric vehicles within their fleet (An Post, local authorities for Dun Laoghaire, Tipperary and Dublin city council, etc.). Prioritising electric vehicles, both owned by and subcontracted by healthcare is a further opportunity to increase the margin of renewable energies.

- a. Healthcare's fleet
- b. Staff commuting
 - i. Missed opportunities of healthcare sector to support active transport
- c. Healthcare's additional use of transport

Recommended Actions

1. Healthcare facilities supporting active travel
 - a. Mandatory secure bicycle parking at all healthcare facilities for both patient and staff

- b. Mandatory staff changing rooms with showers in close proximity to bicycle sheds at all healthcare facilities.
- c. Tertiary Hospitals to coordinate with local authorities for protected cycleways on the main approach to hospitals.
- d. Mandatory minimum staff car parking charges at all healthcare facilities outside of on call parking.
- e. Employee kilometer allowance as introduced in Belgium for every kilometer cycled or walked to work.

2. Healthcare facilities transitioning to zero emissions

- a. Tertiary hospitals to meet with the department of transport and local authorities to review the main public transport corridors to hospitals and optimise these routes, with for example additional bus connects, cycling stations, taxi ranks etc.
- b. Healthcare facilities to promote use of public transport and active travel on all appointment letters.
- c. Mandatory electric vehicle charging points in all healthcare facility care parks.
- d. Electrification of vehicles, or use of low-carbon alternatives for the health service including the ambulatory fleet, incentivisation for staff to use electric vehicles and leasing of vehicles. This will compliment the increased use of electrification of vehicles and further investment in a comprehensive electric charging infrastructure across Ireland.
- e. Outsourcing of transport in healthcare to prioritise electric vehicles when selecting contracts.

Examples

1. Belgium kilometer allowance
2. Ambulance Victoria (AV) will source 100% renewable energy by 2025.⁽⁶⁷⁾ This will reduce the organisation's overall emissions profile by 27%. The energy strategy has been developed subsequent to the Black Summer bushfires where the service was challenged by spikes in callouts of up to 51% for respiratory distress in single evenings.⁽⁶⁷⁾ As of 2020, AV have already signed a power purchase agreement and switched to 100% GreenPower accredited renewable energy for all large AV sites that are high electricity users.

3. (67) Mirage News. AV moves towards renewable energy 2020 [cited 6 July 2020].
Available from: <https://www.miragenews.com/av-moves-towards-renewable-energy/>

Section 4. Provide healthy, sustainably grown food and support climate resilient agriculture

Situation: Sustainable food procurement for Healthcare facilities

Food sourcing is a vital aspect of sustainable procurement as it can directly and positively affect human and planetary health in a way that most areas of procurement do not. Sustainable food procurement should favour minimally processed, locally produced, organic, seasonal and fairly traded foods where possible (including vending machines).

Current guidelines for diet within acute facilities do not prioritize sustainable food.

1. Sustainable Food Pyramid

- i. The Irish Healthy Eating Guidelines and Food Pyramid is not aligned with recommendations for sustainable, healthy diets, nor does it support the target of reaching net-zero carbon emissions by 2050.
- ii. They are heavily dependent on animal produce, with promotion of daily consumption of meat, poultry and dairy while segregating plant-based proteins as “vegetarian proteins”.
- iii. The Brazilian dietary guidelines are exemplary, weighting their advice equally about what should be eaten with when, where and how to plan making meals in a culturally appropriate manner⁹. This is less abstract than food pyramids and food plates and has the potential for greater meaning for individuals.

2. Guidelines on healthy sustainable diets

- a. Reducing highly processed foods, starchy vegetables and red and processed meat while increasing fruit and vegetable consumption would be in line with other existing guidance on healthy diets e.g., the 2016 European Society of Cardiology guidelines recommend a total fat intake of less than 30% (less than 10% saturated) ⁶.

- a. Similarly, the American Heart Association's 2017 presidential advisory on dietary fats advised that replacing saturated fat with polyunsaturated vegetable oils could reduce cardiovascular disease by 30% 7.
- b. Belgium and Canada are among countries who have reformulated their food guidance to incorporate sustainability as well as health (17. (Appendix need to sort numbers)
- c. The EAT–Lancet Commission is one of the first attempts to summarise and communicate the best available science on what constitutes a healthy diet within environmental targets (5).

3. Food Environment; access and education

- a. The pending HSE framework for delivering a national social prescribing network would be ideally placed to direct those with identified needs to appropriate local services, and would be a relatively cheap intervention compared to the longitudinal costs associated with chronic disease management.

Examples:

1. Sustainable procurement within healthcare facilities
 - a. In Austria the 18 hospitals of the Vienna Hospitals Association have delivered a 32% organic menu, with between 80 and 90 per cent of the food coming from Austrian producers (15).
 - b. In Belgium the Hopital de la Citadelle in Liege sources 95% of its food from Belgian producers (15).
 - c. In Denmark half the food served in a number of hospitals in West Zealand is now organic, without an increase in expenditure (15).
2. Examples from Montefiore Hospital, New York which has a plant-based dietary recovery programme recommended for cardiac inpatients has shown dramatic results¹⁴ and Hayek Hospital (Beirut, Lebanon) announced March 2021 that they are transitioning their hospital menu to become more plant focused (16).
3. Taxation of sugar sweetened beverages throughout Latin America have shown consistent beneficial effects (12).

Recommended Actions

1. Sustainable Procurement
 - i. Develop sustainable procurement guidelines for healthcare facilities.
2. Support healthy diets within healthcare
 - i. Support interventions to reduce rates of obesity via substitution of unhealthy foodstuffs with fruit, vegetables and wholegrains.
 - ii. Advice and support, referral to weight management services.

4. Education and Policy
 - i. Develop a labelling system to inform consumers about the health and environmental impacts of their purchases.

5. Public health measures to support healthy environmental friendly diets
 - i. Restriction of marketing and promotion of foods which have both large carbon footprints and negative health impacts.
 - ii. Restrict incentives for overconsumption at a consumer level e.g., “buy one get one free”.
 - iii. Subsidise production and sale of fruit, vegetables, nuts, seeds and wholegrain products to support increased uptake of plant-based diets.
 - iv. Use of taxation to incentivise low carbon impact and environmentally friendly food systems

6. Guidelines on healthy sustainable diets:
 - i. Ensuring the food pyramid to take the environmental impact of food into account when making recommendations (e.g. seasonality, food miles, packaging).

Sector 5. Pharmaceuticals

Impact of Pharmaceuticals on Carbon Emissions

Situation:

This section will look at some key elements of this that can be improved in the Irish context within the role of pharmaceutical manufacturing, use of anaesthetic gases, and ways to improve emissions by considering a product's entire lifecycle.

1. Upstream emissions from pharmaceutical manufacturing

Pharmaceuticals are a key part of Scope 3 emissions. They account directly for 5% of Scope 3 emissions via production, as well as indirectly through transport and disposal (2).

The pharmaceutical industry is extremely emissions intensive. In 2015 emissions intensity for the pharmaceutical industry was 48.55 Mt-CO₂e/\$M, which is about 55% higher than that of the Automotive sector of 31.4 Mt-CO₂e/\$M for that same year (1).

Despite growing concerns over the environmental impacts of pharmaceuticals, Environmental Life Cycle Assessment (LCA) remains far from common practice in the pharmaceutical industry. Furthermore, existing pharma-LCAs are quite inhomogeneous in multiple respects, e.g. the choice of functional unit or of impact categories. (4) Certain pharmaceutical products are known to be extremely carbon intensive, such as metered dose inhalers (MDI) and anaesthetic gases (2).

2. Anaesthetic Gases

Inhalation anaesthetic gases (IAGs) are potent greenhouse gases and the CO₂ equivalent (CO₂e) emissions from an anaesthesiologist's daily routine often add up to more than 1000km driven in a car (8). It is probable that CO₂e emissions from anaesthetic gases account for 5% of all hospital emissions (9) - a disproportionately high amount for such a focused aspect of healthcare.

Numerous methods for reducing CO₂e emissions from IAGs without affecting patient care have been described (10). Some IAGs (e.g. Desflurane and Nitrous Oxide) are considerably worse than others for the environment. Nitrous oxide in particular may contribute to 80% of all anaesthetic gas emissions (11).

Unlike the UK, Ireland does not quantify CO₂e emissions relating to IAG - a necessity if we are to be able to demonstrate reductions in emissions over time.

3. Metered dose inhalers and appropriate collections systems

Pressurised metered-dose inhalers are a method of choice for delivering drugs into lungs for the treatment of asthma and chronic obstructive pulmonary disease across the globe. HFC-134a and HFC-227ea propellants, which are currently used in these inhalers, have a global warming potential respectively 1300 and 3350 more potent than carbon dioxide. (5) In the UK inhalers are responsible for 4% of the carbon footprint of the NHS in 2018. This figure reflects the high rates of MDI prescribing in the NHS (70% of inhalers prescribed are MDI, compared to 10-30% in Scandinavia). Low carbon alternatives are available in the format of dry powdered and soft mist inhalers. Low carbon inhalers are suitable for a majority of patients and there are no links between inhaler type and outcome including mortality.

4. Responsible Disposal of Medications

Regulations on disposal of unused medicines exist in the EU (Directive 2001/83) 5: *“All EU Member States shall ensure that appropriate collections systems are in place for medicinal products that are unused or have expired”* (6). However, there is no harmonised take-back system imposed at the EU level. (6) Inappropriate disposal of medications in landfill and sewage streams negatively impacts on ecosystems and biodiversity. Currently community pharmacies are providing this service on a pro bono basis. This is not acceptable as the costs incurred discourage many pharmacies from promoting this service.

Recommended Actions

1. Mandatory Reporting Framework:

In lieu of current voluntary sustainability reporting frameworks, a mandatory framework that requires companies to issue “sustainability statements” that follow a standardised, comparable and contextual format that is reminiscent of financial statements should be implemented (1). The contents of this should be defined through legislation. Contents should include

- i. Regular reporting of Scope 1, 2 and 3 emissions
- ii. Targets and projections for reduction of emissions
- iii. Report on progress of meeting targets

2. Common Life Cycle Analysis:

Pharmaceutical companies should be mandated to provide an LCA for all products on market to HPRA. A streamlined LCA tool, such as that developed by the American Chemical Society Green Chemistry Institute (ACS-GCI) Pharmaceutical Roundtable should be used. (4)

3. Procurement strategy:

As part of an overall strategy to reduce scope 3 emissions, The Department of Health, HSE and individual hospitals, should set criteria for low-carbon or zero emissions procurement. The proposed tools (Common Reporting Frameworks and Lifecycle Analyses) should be used as objective measures of a company or products environmental impact. This will incentivise suppliers and manufacturers to decarbonize their operations and products.

4. Anaesthetic Gases:

- a. Recognise the issue and commit to the regular measurement of CO₂ emissions from IAG by the following suggested methods:
 - i. Obtaining information on total number of bottles of sevoflurane, isoflurane, desflurane dispensed to each hospital in Ireland - this could be obtained from central supply (Baxter Ltd) or from individual hospital pharmacy departments.
 - ii. For nitrous oxide, data on total number and size of Nitrous oxide and entonox cylinders dispensed to each hospital in Ireland should be obtained.
 - iii. Using the NHS Anaesthetic gases calculator CO₂e emissions can then be calculated (11)
- b. The use of low emission anaesthesia should be encouraged by avoiding the use of IAGs with a higher global warming potential (Desflurane and Nitrous Oxide) and/or by encouraging alternatives to inhalational anaesthesia with regional anaesthesia and total intravenous anaesthesia.
- c. Financial support to allow hospitals to upgrade their anaesthetic machines to more modern versions that will safely allow lower IAG flows which would drastically reduce emissions.

5. Metered dose inhalers and appropriate collections systems

- a. A nationwide educational campaign for all members of the respiratory multidisciplinary team on Inhalers and carbon footprint, for example via HSEland.
- b. Regular accurate measurements of the greenhouse gas emissions of inhalers in Ireland
- c. Develop a projection and target for the reduction of the emissions.
- d. Provide financial reward for general practices that demonstrate through a practice audit a clinically appropriate or reduced rate of MDI prescribing.
- e. Introduction of a permanent nationwide inhaler recycling scheme, for example the pilot recycling scheme by Teva.
<https://www.teva.ie/patients/inhalerrecycling/>

6. Responsible disposal of medications

- a. A nationwide DUMP (Disposal of Unused Medicines Properly) scheme should be introduced by the HSE and local authorities that would encourage the public to return their unused medicines to pharmacies, which would have significant environmental and patient safety benefits and, at the same time. It is essential that this service is publically funded and participating pharmacies are reimbursed for any costs endured. (6)
- b. Funding for this could be created by a point-of-sale tax on all medications on a per-pill basis. Alternatively appropriate collaboration with industry, such as the TEVA inhaler recycling system can be encouraged. (7)

Examples

1. The NHS long term plan refers specifically to 'transforming anaesthetic practices' in its pursuit of a net zero NHS with a plan to reduce their carbon emissions by 51% by 2025 with 2% of that to come from the transformation of anaesthetic services (12).
2. TEVA has collaborated with many local Irish pharmacies to sustainably collect and recycle inhalers (7).

Section 6. Implement circular healthcare and sustainable healthcare waste management

Hospital waste contributes significantly to the well-being of the environment, with about 80% of products used, from PPE to sanitary products, are single use. With 5% EU greenhouse gas emissions deriving from the healthcare sector, there has been an increase in pushing forward sustainable healthcare-associated waste strategies and public procurement legislation. The healthcare sector has the moral responsibility and the power to transform how we deliver care. By reducing the environmental impact of healthcare through innovation, development of a circular economy, and influential advocacy we can create sustainable healthcare that benefits the planet and for the patient.

1. Hospital Waste

The majority of waste produced by the healthcare sector (roughly 85%) is classified as non-hazardous and similar to domestic waste. Over half of this non-hazardous waste is composed of paper, cardboard and plastics, while the rest comprises food, metal, glass, textiles and wood (1).

In Ireland, the EPA's Green Healthcare Programme (GHCP) estimates that 17,000 tonnes of non-hazardous residual waste is generated by hospitals in Ireland each year, along with healthcare risk waste (1). Despite the recyclable waste services in Irish hospitals, large volumes still end up in the non-hazardous residual waste bins. Based on a series of waste surveys, GHCP found that, in acute facilities, 32% of the materials found in the non-hazardous residual waste was recyclable materials (1). They also found that savings of between €380,000 and €550,000 per annum could be made in acute hospitals by ensuring that recyclables are kept segregated from general landfill waste (1).

Typically, only 15% of waste from the healthcare sector should be classified as hazardous – waste that is potentially infectious, toxic, radioactive, and/or capable of other environmental and health risks. Disposal of hazardous waste is even more costly, requiring sterilisation. If non-hazardous waste is mixed with hazardous waste and not segregated at the point of generation, it must be classified and treated as hazardous medical waste.

The lack of segregation and separate waste streams means that the quantity of waste categorised as hazardous is unnecessarily higher than it needs to be – impacting not only the environmental impacts of waste disposal, but also the financial costs of disposal and

treatment. It costs nearly €700 more per tonne to dispose of waste as healthcare risk waste, rather than as landfill waste. It costs over €1,000 more to dispose of waste as special healthcare risk waste (1).

Since the advent of the COVID-19 outbreak, we have seen a sudden increase in healthcare generated waste, both hazardous and non-hazardous due to increased use of single use personal protection equipment (PPE). During the pandemic, the UK healthcare sector alone has seen demand for facemasks grow by 4,700% - up to 85-90 million per month. The consumption of single-use aprons and gloves has grown 550% and 200% respectively. This trend is reflected here in Ireland and the prevailing growth of disposable PPE is increasingly problematic.

2. Food Waste

Food waste can be a significant issue in hospitals, and due to the nature of the sector, is often difficult to address. Preventing food waste is one of the priority areas of the European Commission's action plan for the circular economy adopted in December 2015 (2). Revision of this legislation in May 2018 (3) led to the implementation of specific measures for Member States to establish national programmes to prevent and reduce waste in each step of the supply chain and regarding the monitoring and reporting of waste levels.

Based on the results of surveys carried out by the GHCP in Ireland, it is estimated that between 37% and 49% of the food provided to patients in Irish hospitals is not eaten, with an average acute hospital generating approximately 0.73 kg food waste per in-patient bed day (1). Furthermore, this valuable food waste costs on average €2.15 per kg to purchase, with a further €1.30 per Kg when accounting for transport, preparation and staff costs to prepare food (1).

Overall, the waste produced in a survey from acute hospitals in Ireland found that up to 3,600 tonnes of food waste is produced, amounting to a cost of 7.2 million euro per annum (1). The healthcare sector is in a unique position to integrate agriculture, health, and environmental goals. Through their purchasing decisions, healthcare providers can invest in sustainable agriculture, and can act as powerful advocates for action on public policy to build healthy and sustainable food systems.

By implementing healthy and sustainable food strategies, healthcare providers can improve public and environmental health, and begin to address the socio-economic disparities that exist within our communities.

3. Procurement

Healthcare in Ireland has an expanded scope of emissions that encompasses the production and transport of goods, medicines, food and hospital supplies. The procurement of these goods and services is an important consideration for healthcare carbon emissions.

Sustainable procurement that encompasses green and social/ethical considerations in purchasing practice is an opportunity to reduce emissions not only in healthcare but across sectors in Ireland. While neither The Department of Health or the HSE does not control these emissions directly, it can use its considerable purchasing power to influence change.

Ireland's health service receives the largest share of government expenditure of any EU country. In 2014, the health service in Ireland was allocated almost a fifth (19.9%) of government expenditure, significantly more than the NHS in Britain (17.3%) and roughly four times more than European countries like Greece and Slovakia (4). The HSE and its funded agencies purchase approximately €3.2 billion each year of goods and services that's a staggering €8.8 million for each day of the year, more than €6,000 each minute, or more than €100 per second (4).

We can reduce emissions through our supply chain in three ways: more efficient use of supplies; low-carbon substitutions and product innovation; and by ensuring our suppliers are decarbonising their own processes.

For any service to deliver on a carbon reduction commitment, we must commit to having a net zero supply chain (5).

Case examples

1. Hospital Waste

a. Together with the GHCP, The Midlands Regional Hospital in Tullamore conducted a waste study in surgical theatres, focusing on waste segregation and clinical waste minimisation. Through the training of staff, highlighting savings cost, clear identification of bin labels and recycling bins and clear positioning of all waste bins, they managed to produce 0.5 kg less healthcare risk waste per bed day than the average GHCP facility. This equates to savings in the region of €26,000 per annum, compared to the average acute facility (6).

b. Single-use items are favoured in many clinical settings in light of safety as well as lower upfront costs. However, reusable alternatives exist, and when life-cycle costs are considered, are more financially sustainable. Before the COVID-19 pandemic, reusable PPE practices were being carried out in some sites in the US. The UCLA Medical Center switched to using reusable isolation gowns in 2012, diverting almost 300 tons of waste from landfills, and saving more than \$1.1 million in purchasing costs over a three-year period. Another American study showed that laundered medical gowns were more durable and provided better protection than disposable gowns, even after 75 industrial launderings (7).

c. After the first wave of COVID-19 in the UK, the NHS started a pilot project to introduce reusable Type IIR certified face masks, showing how healthcare can promote demand for reusable products in a market otherwise dominated by disposables. This study involved 29 hospitals, 25 GP surgeries and 5 suppliers. Reusable PPE masks were separately stored and laundered, in accordance with the manufacturer's instruction after use. Based on 200 facemasks replacing 10,000 single use – Savings of £100,000 to £800,000 dependant on how they are used. Challenges facing reusable PPE exist including obtaining CE marking and aligning standards with current Infection Prevention and Control regulations. By devising standard operating procedures to meet these guidelines and standards, reusable face masks could become a reality (8).

- d. Sterilisation wrapping (plastic and paper) is generated in large volumes in the theatre. This wrapping (often blue) is bulky and quickly fills up waste bags. Reusable aluminium cases are used for the sterilisation of instruments in a number of US facilities. Switching from disposable blue wrap to rigid reusable sterilization containers saves substantial amounts of money, reduces waste, decreases energy requirements, increases storage space, improves patient safety and instrument reprocessing turnaround time (9).

2. Food Waste

- a. The MECAHF project - Circular Economy Model of Food in French Hospitals - was developed by Healthcare Without Harm (HCWH) Europe in collaboration with the Hospital of Niort between 2018-2020 to assess food waste throughout the food supply chain (10). This project surveyed staff and patients about food consumption and disposal in hospitals, and measured the food waste produced. This led to the development of two menu rotations to take advantage of what is in season and to appeal to a large number of patients depending on diet needs and locality. They then established a sustainable purchasing policy, through the use of a food waste measurement tool, in order to identify products that can be substituted for more fresh, local and organic alternatives and identify local and organic farmers. A second tool to calculate the carbon footprint of food production was created based on the hospital's purchases and a list of typical products within the ADEME Carbon database (11).
- b. Food waste regulation by law has already been adopted in EU countries, such as the EGALIM law in France, introduced in 2018, which oversees healthy and sustainable food and governs the balance of commercial relations in the agricultural sector, including specific rules to continue the reduction of food waste in catering services. The EGALIM law also requires public catering to use 50% local products or products from labels of origin and quality.

3. Procurement

While Green Public Procurement (GPP) is a relatively recent introduction to the EU framework, there are some countries who have made strides in GPP in healthcare settings. Within the EU, there are a number of countries making commitments to zero hospital

building emissions and investments in climate-smart technologies, such as the Netherlands and in the UK (12). Below are case studies from Vienna and Reykjavik that show strides that can be made when it comes to implementing GPP criteria in hospitals, and how they contribute meaningfully to the environmental footprint of the healthcare provided within the hospitals.

- i. The environmental GPP program 'ÖkoKauf Wien' was implemented by the Viennese government that mandates public institutions to procure goods and services according to certain ecological criteria. The guidance provided helps to ensure that products with good environmental ratings are identified and available at manageable prices. The procurement criteria takes into account natural resources used in the production of the goods and services, efficiency, emissions and more. Through this program, Vienna's healthcare services have created their own criteria when it comes to the use of disinfectants and cleaning products within hospital settings, and invested in products that have a good ecological ranking. The program ÖkoKauf Wien has helped to reduce carbon emissions by 15,000 tons per year since its implementation (13).

- ii. Reykjavik, Iceland has transitioned to include GPP criteria in its healthcare. Since 2012, Landspítali Hospital has implemented an environmental program to include environmental tenders and a centered focus on social responsibility in the hospital. Landspítali introduced GPP criteria for waste management, vehicles and energy-efficient equipment. They have focused on social responsibility, and have transitioned to 90% eco-label products for cleaning, and increased recycling and sorting facilities for patients. Landspítali also focuses on the environmental waste, which included transitioning to waste management sorting programs. This involves discontinuing the use of plastic coverings and minimizing disposable items used within the hospital (14).

Recommended Actions

1. Measurement of healthcare carbon footprint, including those derived from its supply chain.

- a. From such measurements, carbon 'hot-spots' can be identified.
- b. Established tools and resources can be used for measurements, for example the Marginal Abatement Cost (MAC) curve, which can show users which carbon reduction measures save the most money.
- c. Develop and implement an online platform to track the carbon footprint of products used and resource consumption, generating useful data that can be used to identify areas in which sustainable procurement can reduce emissions and improve efficiency.

2. Measurement, monitoring and reduction of healthcare waste

- a. The establishment of meaningful goals for the measurement and reduction of all waste
- b. Reduction of waste
 - i. Improve waste sorting and disposal into appropriate categories.
 - ii. Where compostable alternatives used, mandate that a compostable bin must be provided
 - iii. Reconsider the use of pre-made packs for healthcare procedures, which often contain unnecessary single-use plastics.
 - iv. Enforce the directive from the Department of Communications, Climate Action and Environment in 2019 which stated that HSE managers should no longer purchase single-use plastic cups, cutlery or straws in HSE facilities
 - v. Hazardous waste incineration methods should be phased down, starting with facilities that do not meet the standards recommended by the Stockholm Convention on Persistent Organic Pollutants, the World Health Organization's healthcare waste management policy, and the European Union.
- c. Recycle waste
 - i. Ensure access to appropriate recycling bins in all healthcare facilities in Ireland

- ii. work with companies supplying the health sector to develop and encourage take-back facilities, particularly those supplying large electrical equipment, large quantities of packaging and sector-specific materials.
- iii. Implementation of medicine waste recycling schemes eg inhaler recycling

d. Reusable methods

- i. Increase funding for and availability of fast sterilisation and decontamination facilities so that more reusable healthcare items can be used, instead of single-use plastic items that need to be disposed of after use. For example, reusable metal speculums vs single-use plastic ones, metal laryngoscopes vs plastic ones, metal surgical equipment for minor/day-case procedures vs disposable plastic equipment

e. Reinstatement of the Green Healthcare programme to monitor and audit waste strategies in the healthcare sector in Ireland.

3. Reduction of food waste

- a. Monitor and measure food waste (weight and cost)
- b. Identify which food items are wasted most often and where the waste occurs (e.g. kitchen, canteen, wards).
 - i. Auditing food waste regularly
 - ii. Estimates of emissions from food waste should be considered under the 'farm-to-fork' principle, i.e. non-edible food products are considered in the estimates.
- c. Methods to reduce waste in healthcare facilities
 - i. Allowing patient choice in portion size and meal time
 - ii. Training catering staff about food waste management
 - iii. Have appropriate food waste and compostable bins
 - iv. Introduction of more sustainable, plant-based options into menus.
- d. Establish a simplified food procurement supply chain
 - i. Encourage healthcare facilities collaborating with local producers

- ii. Source seasonal and organic produce where available

4. Incorporation of Green Procurement into public procurement strategies

- a. Develop targets for GPP in healthcare procurement tendering
 - i. By setting goals for contracting authorities we can encourage quality standards and technological advancements for existing goods and services.
- b. Use life-cycle cost to choose best tender
 - i. Move to value-based as opposed to price-based procurement
 - ii. Life-cycle costs can be used to compare costs of environmental impact of a specific product or service, such as its emissions footprint
 - iii. By monitoring the life-cycle, purchasers can see the environmental impact of the product or service to make their choice (choosing the one with the smallest environmental impact).
- c. Select tenders based on the Most Economically Advantageous Tender
 - i. The Most Economically Advantageous Tender (MEAT) is a method of assessment that can be used as the selection procedure, allowing the contracting party to award the contract based on aspects of the tender submission other than just price.
- d. Encourage and facilitate Green innovative procurement
 - i. GPP can facilitate the innovation of new technologies and sustainable measures within healthcare settings
 - ii. This includes innovating climate-smart technologies and innovative management processes of existing goods and services.
 - iii. Facilitate access to the public procurement market for small and medium- sized enterprises and for local Irish-based businesses.
 - iv. Reduce administrative burden for GPP with simpler and flexible procedures. This can be aided by having a centralised procurement body and unification of tenders and contracts across multiple sites.

5. Education

- a. Increase the knowledge, awareness, and skills of all professionals in the healthcare sector on sustainable healthcare.
- b. Supported by the introduction of sustainable healthcare into the curricula for all health professionals, a model of which Irish Doctors for the Environment is currently engaged in.
- c. Strengthen the capacity for sustainable procurement by increasing knowledge and awareness amongst procurement professionals.

6. Develop a standardised framework for regulation and targets

- a. There is currently no adequate framework for considering the carbon emissions or the cost of disposal within healthcare procurement. There is currently no business case for a circular economy in Irish healthcare as waste disposal or sterilisation is a different budget to procurement.
- b. Development of a standardised framework for green procurement and sustainability in healthcare, as guided by the EU Green Public Procurement Criteria (2014)
- c. A standardized framework can include green tenders established for specific branches of services and products.
- d. The framework developed should reflect economic and environmental incentives that positively impact and support the environment.

7. Monitoring

- a. Improvement in the monitoring and data collection capacity of the healthcare system is paramount to the progress required to develop a sustainable healthcare system.
- b. Sustainability indicators, like those used in the NHS with the Greener NHS Dashboard includes key indicators on anaesthetics, waste and building energy use, and process indicators to support action to deliver on current commitments.
- c. Annual sustainability reporting to be mandated across the HSE.

Sector 7. Establish greater health system effectiveness

Current Situation: Building a Resilient Healthcare System

Health systems are composed of numerous cross-sectors, which all must continue to contribute towards decarbonisation as highlighted throughout this document. Policymakers must optimize a 'climate lens' across sectors to ensure and prioritize system decarbonisation and resilience, adapt infrastructure, develop a climate-ready workforce, ensure equity amongst interventional measures.

Climate-informed assessments should be carried out across sectors to ensure health care decision making and policy leads to systems which are better enabled to withstand climate 'shocks' for example infectious disease outbreaks, future pandemics, heatwaves, floods and other severe weather events (1). The countries which have the best health outcomes are those who have robust social systems, economic and health equity systems in place. The more efficient a health service is, the more aligned with universal health care and global climate goals it will become.

Recommended actions:

1. Reduce emissions by improving system effectiveness

a. Eliminating inefficient and ineffective practices

- i. Reduction of overprescribing, overtreatment within health systems which in turn has knock-on effects of reducing demand for unnecessary procedures and pharmaceuticals.
 1. Monitor and report on overprescribing
 2. Computerized Clinical Decision Support Systems (CCDSS) to aid clinicians to view the cost of test prior to ordering on the system
- ii. Monitoring and evaluation of preventable medical errors
 1. Ensuring 'no-blame' culture within healthcare systems
 2. Implementation of viable solutions for prevention of medical errors
 3. Clinical incident reporting systems to identify adverse events

- iii. Delivery of low-value care through widespread national guidelines, ensuring that models of care are guided by both quality and low-carbon criteria.
- iv. Ensuring 'Centres of Excellence' for advice and guidance nationally through telemedicine, efficient referral services and point of contact care
- v. Providing adequate information technology services for clinicians with data-secure policies, to aid addressing the efficiency and effectiveness of providing healthcare
- vi. Dedicate human and financial resources to transform facilities to reorganize health care operations and clinical services toward zero carbon emissions through efficient workforce, adequate staffing and ensuring educational requirements are met

b. Improving system resilience

- i. Leverage health care's purchasing power in the construction industry to systematically drive carbon reduction through production processes, the reuse of building materials, and the development of sustainable and/or reusable materials.
- ii. Encourage the development of green spaces and natural environments in and around health facilities
- iii. Inclusion of effectiveness measures, resilience, specific zero carbon, and ecologically sustainable ambitions as part of the tender and selection processes for all services, as outlined in Section 5 & 6 of this document

c. Cost-effective healthcare

- i. Telemedicine
 - 1. Improving and building on certain measures which have resulted from COVID-19 including telemedicine will reduce carbon footprint of health infrastructures. An example of this was displayed in two rehabilitation units at Umeå University Hospital in Sweden which found that replacing physical visits with a virtual appointment led to a 40 to 70 times decrease in carbon emissions (3).
- ii. Improving IT infrastructure
 - 1. Improving IT infrastructure would require a significant up-front cost, however it would have significant cost-effectiveness for improvement of data collection, health system efficiency (4)

iii. Measuring carbon emissions

1. To date, adequate systems have not been established in Ireland to measure the impact of climate change on health. As discussed in Section 5 & 6, sustainability indicators as used in the NHS with the Greener NHS Dashboard are suggestions which may be required to deliver on current commitments.
2. Measure facility, clinical pathway, and system climate footprints, set targets and publicly report on progress.

iv. Encouraging and Supporting Innovation across sectors

1. Provide easy to input, timely data in the hands of those who can make day-to-day changes including doctors, nurses, patients, and families.
2. Ensure aggregation of data by managers for system-level data with achievable targets and innovation regarding interventions for carbon-zero. The NHS have a clear framework provided through their reduction of greenhouse gas emissions

2. Public Health & Health Promotion in the community

Health promotion begins with public policies which strengthen social determinants of health, including access to healthcare, education, employment opportunities, food security, affordable housing and a clean and safe environment (52021. A FRAMEWORK FOR IMPROVED HEALTH AND WELLBEING 2013 – 2025. [online] Available at: <<https://www.hse.ie/eng/services/publications/corporate/hienglish.pdf>> [Accessed 15 May 2021].). IDE applauds the Government's recent agreement on extending the roles and posts for Public Health Consultants, including equity of pay with other hospital Consultant colleagues.

a. Prevention of noncommunicable diseases

Actions:

- Implementation of low-emission zone areas, as example in London and Berlin where restrictions on older, higher-polluting cars through city center aim to improve air quality inner-city
- Ensuring nationwide tackling of air pollution, including measures such as equitable roll out of national solid fuel ban with increased measures to address fuel poverty including broadening the eligibility

criteria for state funded upgrades and broadening the warmth and wellbeing eligibility to all chronic diseases

- Promotion of active transport, as explored in Section 3

b. Supporting Family Planning

Population growth, in particular urban growth, is linked to climate change vulnerability, which puts an increasing demand on our health system and resources. Actions include:

- i. Equal access to contraception
- ii. Family planning services & providing easily-accessible timely abortion and reproductive health services across Ireland
- iii. Ensuring sexual health education is implemented and separate from religious entities within primary and secondary schools across Ireland
- iv. Anticipate population growth 'hot spots' to adequately support communities for housing, schooling and community health needs

c. Health Inequalities

- i. Particular attention needs to be paid by policymakers to prevent this situation, through employing a proportionate universalism approach and strengthening investment in public health policies and services, as well as more specific climate change vulnerability assessment.

Example - The health inequalities include the average life expectancy of a homeless person living in Ireland is 42 years old, median age for males 44 years, females 37 years (5).

- ii. Improving housing conditions has a significant knock-on effect for population health, by prevention of diseases, reducing poverty, increasing quality of life and helping to mitigate climate change (6)
- iii. Reducing homelessness and ensuring accessibility to affordable housing supports health outcomes, including improved educational outcomes, creation of jobs and stimulation investment. Addressing the environmental and health risks associated through housing will lead to benefit lower-income and vulnerable groups in Irish society.
- iv. Direct Provision dismantlement through the recommendations within the Expert Advisory Group Day Report including increasing access to the labour market and own-door accommodation

d. Health in All Policies

Health in All Policies approach was recommended by the Eighth Global Conference on Health Promotion by WHO in 2013. This approach takes into

accounts the health implications of decisions, and seeks synergies through inter-sectoral approaches and is a tool which should be continued to be used by the Irish Government to improve population health and equity.

Case Study of Health in all Policies:

Tobacco control is an example of Health in all Policies at the global level. The Framework Convention on Tobacco Control (FCTC) which entered into force on 27 February 2005, is the first treaty-negotiated under the World Health Organization. It recognizes the epidemic of complex factors with cross-border effects including trade liberalization and direct foreign investment, along with the health effects of increasing respiratory diseases including lung cancer, and cardiovascular effects. Ireland became a world leader on March 29 2004 as the first country in the world to implement legislation creating smoke-free enclosed workplaces including bars and restaurants.

The above example should be followed with regards to Ireland's carbon-zero emissions and Paris Agreement commitments.

3. Inter-governmental Approach

While IDE acknowledges that many of these measures fall under the remit of the Department of Health, IDE advocates for an **inter-governmental approach** to the issue of waste. It is imperative that the Department of Communications, Climate Action and Environment, Department of Housing, Department of Justice, Department of Agriculture and Department of Education develop and collaborate a framework to work in conjunction and hold the Department accountable for its environmental impact by avoiding siloes, as explored in Section 8.

Carbon-zero roadmap also requires public accountability regarding the private sectors in Ireland. This includes governance and requirements for the private sector to transition to decarbonisation. An oversight of private systems, health and beyond, requires oversight of ensuring technology, manufacturers and suppliers are using production and distribution practices in keeping with responding to the climate crisis, along with the private sector taking responsibility to move towards zero emissions.

4. Leadership in healthcare

Positive learnings from the COVID pandemic should undoubtedly include public willingness to be led by sound evidence in an emergency and that healthcare professionals and healthcare organisations remain highly trusted sources of information. The response from the healthcare service and healthcare professionals during the pandemic has highlighted the importance of this leadership. There is a requirement for this ongoing strength in leadership to build an appropriate and timely response to the inevitable and immediate climate emergency.

Section 8: Regulatory framework and accountability

1. A framework to unify fragmented climate action

There is currently no framework for integrated climate action in the Irish healthcare system. Action to date is fragmented, with teams working in silos lacking the necessary framework to optimize integrated, interconnected action. For example, HSE Procurement under the office of Health Business Services operates under suggested green procurement guidelines. The choice in procurement has a significant impact on the volume of waste generated. However there is currently no forum for feedback between procurement and waste departments which are run under the supervision of estates with a number of contracted waste management companies at different facilities. At present, the case for more sustainable procurement items can only be made on an item by item basis. A regulatory framework would provide an opportunity for ongoing review and integrated action between these silos. A regulatory framework would stimulate top down action to meet the bottom up action to date.

2. A framework to disseminate nationwide action

At present there is insufficient oversight to implement actions that have been proven to be successful nationwide. For example Waterford Hospital implemented reusable gowns during the Covid-19 pandemic when in short supply, there was no suitable

framework to implement nationwide rollout. If for example a facility creates a business case for sterilisation over single use items and this facility demonstrates cost savings and carbon savings, there is no framework to push for this strategy, particularly one with an upfront cost to be implemented nationwide. A regulatory framework for healthcare's carbon emissions would accelerate nationwide rollout of successful carbon saving measures within Ireland.

3. A framework for accountability

There is no oversight for the carbon emissions from healthcare facilities. There is no accountability for facilities that, for example, produce waste in excess, be it food waste, medicines waste, energy overuse or potent anaesthetic gas waste. At present climate action within Irish healthcare is over relying on the good will of individual healthcare workers, facilities and institutions. While there is growing momentum on the ground, transformative change will only be possible with a regulatory framework.

4. A framework for recognition

A regulatory framework for scope 1, 2 and 3 healthcare emissions would allow for greater recognition of carbon saving actions. There are already excellent examples of low carbon models of care being implemented in Ireland, for example the COPD Integrated care programme and the Frailty Intervention Teams. These programmes focus on early intervention, community based care and a reduction in unscheduled care use, all carbon saving measures. However as there is no baseline for Irish healthcare emissions and no decarbonisation strategy for scope 3 emissions, there is no capacity to quantify the carbon savings. Similarly there is no capacity to reward facilities that achieve carbon savings beyond scope 1. Recognition is integral to incentivise change.

5. An unlimited, multidisciplinary sustainability office

We commend the work of the National Health Sustainability Office (NHSO) for its pioneering projects on energy and waste, in particular the Carbon Energy Fund and the green healthcare initiative. The NHSO have laid out concrete plans to address scope 1 (14%) of Irish healthcare's emissions. The NHSO has evolved from the estates department who are at the frontline of sustainability in Irish healthcare waste, water and energy management. However the office has remained a primarily estates-based organisation for a multidisciplinary healthcare system.

Working in a silo, this office has limited scope to deliver healthcare-wide climate action for the majority of healthcare emissions - scope 3 (77% of emissions). Without multidisciplinary involvement, in particular clinical involvement, this office cannot fully extend its influence over the landscape of healthcare and therefore is limited in its ability to implement sustainability measures. With no clinical expertise the office has no scope to advise on sustainability within clinical practice, for example measures to reduce carbon emissions from inhalers or anaesthetic gas. Without clinical involvement it has no authority to engage with infection control departments which are facility dependent and are integral to waste management. The office has no scope to advise on sustainability within the community - for example general practice and pharmaceutical. The office provides advice to hospital facilities but there is no onus on facilities to engage with the office. Similarly the office has no targets to which it is accountable. Without multidisciplinary involvement in the Irish healthcare sustainability office, Ireland will not deliver net zero healthcare.

Action

1. An assessment of the baseline carbon emissions of Irish healthcare
2. A decarbonisation strategy that commits to net zero healthcare.
 - a. Declare Climate Change a Health Emergency that requires concerted national and global effort.
 - b. A strategy that includes private, public, community, secondary, tertiary.
 - c. Includes key implementation areas, eg. inhalers and anaesthetic gases.
 - d. We suggest that Ireland become a pathfinder country with Healthcare without Harm <https://noharm-europe.org/issues/europe/operation-zero>
3. A sectoral target for healthcare that includes scope 1, 2 and 3 of healthcare emissions.

4. A Regulatory framework

- a. The formation of a national multidisciplinary sustainable development unit involving, but not limited to estates, pharmacy, nursing, medical, procurement, physiotherapy, social work, general practice, nutrition, catering and administration accountable to the Climate Change Advisory Committee .
- b. The Department of Health to report annually to the climate change advisory council on progress towards healthcare's carbon target.
- c. A thorough climate review of health care legislation and regulations at the national and subnational levels, together with a set of specifically tailored policy recommendations, to accelerate decarbonization and resilience.
- d. A framework that ringfences financial savings from climate action for financial reward for healthcare facilities that implement carbon saving action and successfully reduce carbon emissions.
- e. HIQA assessment of healthcare facilities engagement with the decarbonisation strategy.

Example

1. In the UK, sustainability indicators are already reported nationally through a range of systems, such as the Greener NHS Dashboard. This includes key indicators on anaesthetics, inhalers and building energy use, and process indicators to support action to deliver on current commitments. Annual sustainability reporting is mandated for clinical commissioning groups (CCGs) and trusts by the NHS Standard Contract. As of 2020, more
2. Operation Zero, healthcare without harm are going to work with four european countries to develop a roadmap to net zero healthcare emissions.

Reference

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Conclusion

Health, as with every sector of society, has the responsibility to align its actions and development trajectory with the Paris Agreement in order to mitigate the impacts of climate change.

Irish Doctors for the Environment have highlighted the key areas in the healthcare sector that are a priority to meet these demands. Many of these health-based interventions will support carbon emissions outside of the health sector. In the context of healthcare's own growth and demand for health services there is an urgent requirement to undertake these efforts. With an increasingly urban population and overall population growth, our health system is already facing increasing pressures on its resources.

We must become climate-smart while navigating our fragile health environment as we emerge from the COVID-19 pandemic. Building healthcare resilience can only benefit existing health inequities as well as mitigating the effects of climate change. Ultimately the health sector goals of health promotion, disease prevention, universal health coverage and the global climate goal of net zero emissions are intertwined and our actions need to reflect this with cross-sectoral and intergovernmental action.

Healthcare in Ireland has a choice, right now, to progress from being a major per capita healthcare emitter to a world leader or to continue business as usual and be unveiled again, as a laggard on healthcare emissions. The climate crisis is a health crisis. The climate action plan is a health plan. Healthcare is integral and has a responsibility to lead on decarbonisation.

“We really need climate smart thinking to be an integral part of health system planning and implementation. For that to happen we need government-supported initiatives covering the full range of health system functions, including medical product development, supply chain design and management, and health information systems. We also need to think and act cross-sectorally, something that will require a whole of government approach.”⁴⁴

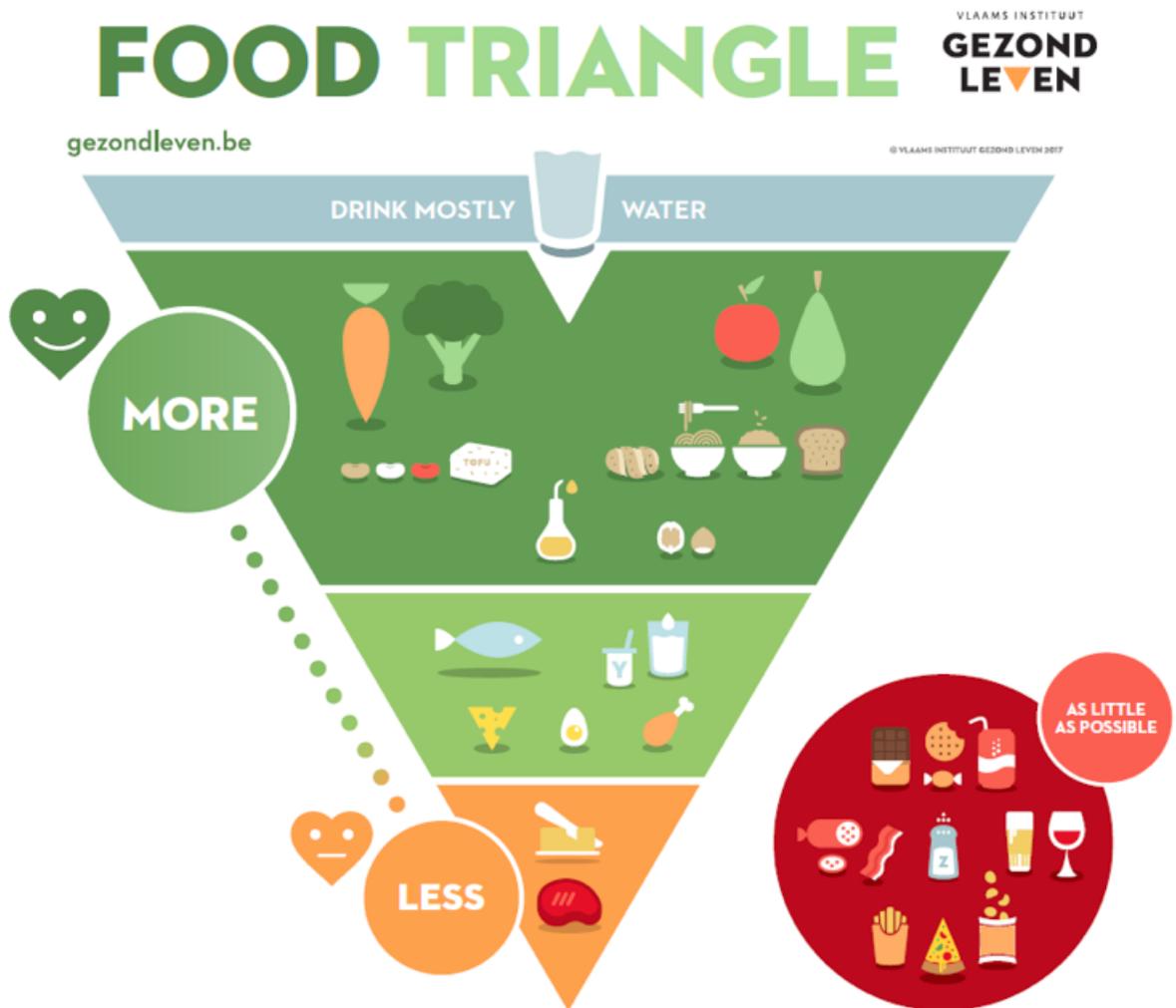
Diarmid Campbell-Lendrum, head of WHO's climate change unit

Appendix

1. Flemish food triangle guidance.
 - a. Eat at least 400 g of fruits and vegetables every day ensuring an equal distribution between the two.
 - b. Limit the amount of spreadable fat used on bread or when preparing meals. Do not eat more than 75–100 g a day of meat, fish, eggs or products made with these foods. Limit your daily consumption of cheese to one or two slices.

Do not drink more than 3–4 glasses of skimmed or semi-skimmed milk or soy products.

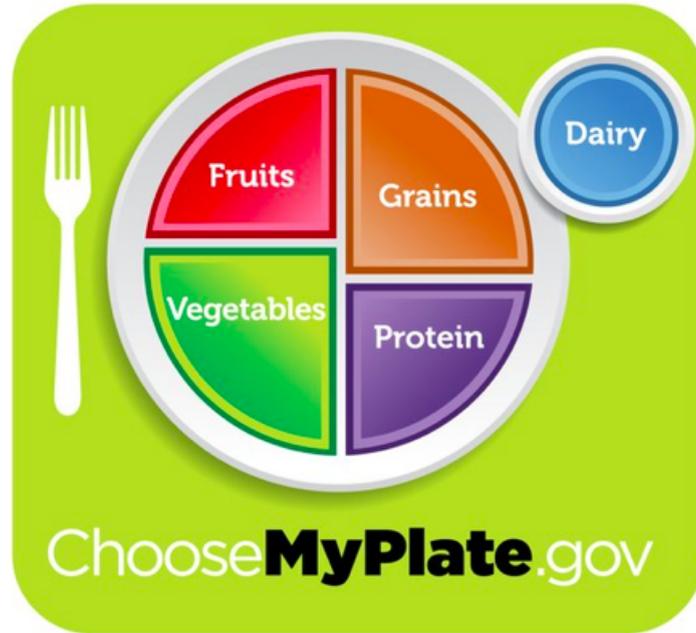
- c. Use good fats, such as unsaturated fatty acids (olive oil), omega-6 (sunflower oil and soya oil) and omega-3 (canola oil, nut oil and soya oil and fatty fish).
- d. Choose carbohydrates and fibre-rich foods, such as baked potatoes (3–5 portions), wholemeal pasta and rice, brown bread and cereals.
- e. Reduce the consumption of energy-dense foods high in sugars, such as pastries, sweets, soft drinks, alcohol, etc.
- f. Use salt in moderation and replace it with iodized salt.
- g. Drink at least 1.5 litres of water every day (water, coffee, tea, etc.).



<http://www.fao.org/nutrition/education/food-based-dietary-guidelines/regions/countries/belgium/en/>

2. Canada's food guidance

<https://food-guide.canada.ca/en/food-guide-snapshot/>



Chapter 2: Decarbonisation of Food and Agriculture

Introduction

From a societal, health, financial and systems point of view, our current food model is not sustainable. The result of a poorly managed food system comes to the attention of all healthcare originations, either directly via chronic disease or indirectly by climate related factors. As healthcare professionals, we are therefore obliged to advocate for a healthier alternative for our patients. IDE calls for transformation of our food and agriculture system, where the upstream and downstream impacts on total greenhouse gas emissions, waste, antibiotics, and pollution at every stage of the food system are considered. Addressing food systems represents a rare triple win; better health for patients and the planet with reduced environmental and societal costs.

7. Sustainable diets for health

a. Direct health impacts

- i. Current Irish eating patterns are not supportive of human health or the prevention of disease, despite dietary factors being the

most significant preventable cause of global morbidity and mortality¹. In Ireland it is estimated that 25% of children and 60% of adults are overweight or obese, and the country is estimated to top the EU in obesity by 2030^{2,3}. The Irish diet is predominantly composed of cereals, dairy, red meat and dessert dishes (70%) with less than 5% of the total daily total made up of legumes, non-starchy vegetables and fruit⁴. Due to this Irish dietary pattern which has a heavy dependence on ultra-processed foods and animal produce with low consumption rates of unrefined plant-sourced foods, figures show that 63% of the Irish adult population exceed the daily recommended upper limit intake of dietary fat, which is a major risk factor for Ireland's leading cause of death, cardiovascular disease.

b. Food Environment; cost-determinants

- i. As the ever increasing health budget demonstrates, "cheap" food is in reality an disproportionate expense borne by all of society, heavily weighted towards those who live in social deprivation.
- ii. Allowing cost to determine food choices alone is already leading to bankruptcy of our health services and health systems. The retail price of food does not reflect the total cost of its production, consumption and upstream and downstream carbon and pollution footprint.

c. Food Environment; access and education

- i. A top to bottom approach is required to assess the access, or lack thereof, to cooking equipment, food storage and cooking education
- ii. In addition to taxation of refined high fat and high sugar food and beverages.
- iii. National, regional and local policy is required that supports a food environment where making the right choice is easy is

needed, being mindful of culture, price, accessibility and education level for food preparation skills.

- iv. This represents a paradigm shift from the easily accessible and abundant highly processed foods that are high in salt, sugar and fat which make up the majority of the standard Irish diet⁵.

d. Food accessibility and seasonality

- i. The issue of “food deserts” is not prominent in Ireland i.e., most small shops and supermarkets offer some fresh fruit and vegetables. However “food swamps” are increasingly common, whereby the public are bombarded by unhealthy convenience food analogues. The health and environmental impacts of unhealthy food environments (e.g., service stations) are not currently considered. For example, the costs associated from managing litter from fast food outlets is externalised to community services. The less visible impact of cardiometabolic disease and the carbon costs associated from fast food outlets are similarly externalised to the health care system and the environment.
- ii. Food produced locally out of season has a far greater environmental impact than food produced in season in other countries with associated food miles⁸. Consumers and healthcare professionals alike need guidance in this respect. Not all food miles are equal and reliable labelling is needed to make meaningful sustainable choices. Similarly, high environmental impact food choices such as red meat are frequently considered sustainable if produced locally. However, eating less meat is much more likely to have a lower carbon footprint than eating local or “sustainable” meat. Mixed messaging and a poor baseline understanding by the public and healthcare professionals requires clear guidance and information.

8. Sustainable Food Production

- a. 92% of all Irish agricultural land is currently used for meat and dairy production, with just 1.5% of agricultural land being used for fruit, vegetable, and legume production¹⁰. There is a symmetry between the lack of diversity of what we eat, the food that we produce and the ill-health for patient and the planet that results. Despite capacity to the contrary, our food systems are failing to produce the foods essential for healthy diets in sufficient quantities and at affordable prices.
- b. Global food production constitutes the single largest driver of environmental degradation, being responsible for unsustainable land-use, deforestation, land changes, loss of biodiversity and greenhouse gas emissions. Irish agriculture is responsible for over 40% of non-traded greenhouse gas emissions, 83% of which is directly caused by livestock¹¹.
- c. Subsidies should be redirected to less carbon intensive avenues that have the potential to modernise rural Ireland in line with the government's rural action plan and the Farm 2 Fork strategy.
- d. To meet our total reduction in emissions in line with targets, a reduction in herd number is required alongside improved efficiencies, mitigation, sequestration measures and diversification to other arable foods and biofuels.
- e. Even with novel food production systems, improved technology and productivity improvements, sufficient reduction in greenhouse gases will not be possible without also including structural changes in the human diet⁵.
- f. Transitioning to an increasingly plant-based agricultural sector can not only help to reduce agricultural emissions, but increase the availability of land for carbon sequestration.
- g. Denmark, with a similar dependency on livestock agriculture, has acknowledged the need for agricultural reformation and is currently increasing research in order to a plant-based system¹³.

9. Food security

- a. Irish agriculture is focused on profitable exports and trade, exporting over 80% of all food produced¹⁰. Tremors such as Brexit have shown that as an island nation, albeit EU member state, we are geographically and now more than ever, politically exposed. Our lack of preparedness and vulnerable food security has been exposed at short notice in recent years.
- b. A post COVID world would ideally look smaller with regional independence for food systems, not only to reduce food related carbon costs e.g. travel, packaging etc but to bolster the health and resilience of communities and encourage ownership of our microenvironments. Currently, Ireland imports many plant-based foods, such as potatoes, cabbage, tomatoes, and lettuce, which could be grown by Irish farmers, if they are financially supported to do so.
- c. The profits of this food system are disproportionately shared, with many trapped in non-sustainable practices that have their own impact on health, both physical and mental e.g., meatpackers in COVID times. We call for a food system where there is mutual benefit for the environment and society.

10. Current Policy

- a. The EU Farm to Fork strategy, along with our national circular economy and biodiversity strategies will require substantial change in how we farm, fish, manage our forests and process, distribute and consume food. From an environmental perspective these strategies are sound and have buy in from stakeholders throughout the EU. However current Agri Food strategy and political will is not aligned with these initiatives as exemplified by the planned cheese factory in Co. Kilkenny and hesitancy to limit the national herd number.
- b. A 51% reduction in agricultural emissions will be required nationally by 2030, yet current agricultural mitigation strategies and policies set out

in the “Ag Climatise” report 2020 focus on genotyping, reduced fertiliser use, and livestock feed are insufficient.

- c. The lack of financial support available to Irish farmers to help them shift to sustainable practises or to diversify into producing more sustainable produce such as fruit, vegetables and legumes is a huge barrier to sustainable economic development and of environmental concern.

11. Action points

a. Education and policy

- i. Transformation of the food system to deliver safe healthy food, regardless of where people live or what they earn.
- ii. Address food related inequalities and promote a food system that is more fair to all stakeholders.
- iii. Inclusion of sustainable, healthy nutrition awareness and the environmental impact of food choices in school and college curriculums.
- iv. Increase availability of community gardens, cooking classes, food preparation and food waste awareness.

b. Agriculture

- i. Incentivise farmers and growers (CAP, F2F) to transition or diversify from ruminant farming to horticulture, woodland or biomass.
- ii. Incentivise organic farming in line with F2F strategy.
- iii. Identify and support potential local and organic suppliers for government facilities such as hospitals.
- iv. Subsidise farmers to undertake environmental stewardship and carbon sequestration activities.

c. Healthy diet

- i. We ask that supermarkets are held accountable for paying farmers fairly and making local and sustainable healthy food affordable.

- ii. Increased availability of community gardens and cooking classes.

CONCLUSION

We call for a food system that offers sustainable nutrition for all with security and resilience to future economic and climate events. We propose that transformation of the existing system must take place in tandem with Ireland's transition to Net Zero and development towards a climate neutral economy by no later than 2050. A transdisciplinary approach to this system shift which involves farmers, policy makers, environmental experts, environmental engineers, and all relevant stakeholders is necessary. A reformed, Irish agricultural system which contributes to farmer income and wellbeing, economic growth, effective climate action, restored biodiversity, sustainable development and human health is not currently in place in Ireland, but it is possible, and essential.

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