A LITERATURE REVIEW ON DECARBONIZING HEALTHCARE FIRMS TO IMPROVE ENVIRONMENTAL PERFORMANCE

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ABSTRACT

One of the biggest worldwide dangers to human health and well-being is climate change. Currently, the healthcare sector itself is a major contributor to climate catastrophe due to its emissions and resource use. There has been a lot of study on how to minimize hospitals' ecological and carbon footprints, but comparatively little research on how to help medical clinics migrate to a carbon-neutral healthcare system. A thorough literature study was carried out and four critical areas that must be addressed in order to effectively decarbonize a medical clinic were identified. These include energy consumption, waste minimization and management, employee attitudes and behaviors, and supply chain decarbonization.

Keywords: Decarbonizing healthcare, Climate-health, Sustainable healthcare

INTRODUCTION

Today all industries are under stress for transition to more sustainable methods in order to lessen the growing negative effects on the environment and human health as a result of pressures on the world biosphere. In addition to mitigating environmental impacts, the health sector may help promote awareness of the interdependence of human and environmental health. Because it is primarily concerned with human health, the healthcare sector has traditionally significant and rapidly rising environmental effects. In earlier days, the healthcare industry was only responsible for improving human health by providing excellent services. But due to increasing in modern healthcare operations, the industry is under lens and is proven to be one of the players in destroying the earth and impacting human well being. This paper aims to give a general overview of how healthcare affects sustainability initiatives and the chances for it to do so, as well as to advise healthcare clinics on the most effective ways to decarbonize their operations.

Despite noble service, the healthcare industry has a significant and expanding environmental footprint due to numerous factor that includes population explosion, development of increasing energy , and expensive modern medical technologies. Decarbonizing the healthcare industry is the only solution to deal with the consequences of climate change.

(Weaver et al., 2010) The consequences of climate change have numerous impacts such as human wellness, supply chains, and availability of resources that additionally put healthcare systems in danger. As a result of their high energy use and propensity for single-use items, hospitals produce the majority of CO2 emissions. There has been a great deal of study on how to improve sustainability results for hospitals because they are the greatest polluters in the healthcare system. Inadequate hospital waste management threatens people by transmitting infectious illnesses and harms the environment. To address these concerns, healthcare organizations have begun to include environmental management into their strategic goals.

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(Rodriguez et al., 2020) Given the significance of sustainable growth for the healthcare industry, it is unclear what characteristics distinguish a business that is sustainable, and there is a knowledge vacuum in this area. Numerous studies have also examined hospital-specific healthcare emissions, waste production, and ecological footprints. This study, along with others, has offered recommendations for decarbonization that are supported by data in order to lessen hospital emissions and their environmental effect.

This study has the following research objectives:

I. First to assess the progress made by healthcare clinics in towards achieving sustainability agenda by decarbonizing their operations.
II. Second is to assess the standards found in the literature for effectively decarbonizing medical offices and how they relate to the broader sustainability theme.
III. Finally to offer a practical and fact-based recommendations to assist healthcare clinics in transforming how they operate.

Background of Research

Causes for Climatic Change and Consequences for Global Health

Climatic change generates changes that enhance and expand the breadth and extent of issues related to health. Climate-related health concerns might be either physical or psychological (mental or psychological health). Infectious and non-infectious ailments fall under the first group. Environmental elements such as temperature, rainfall, and humidity have a significant impact on infections. These, in turn, have an impact on insect vectors, which contain diseases that transmit ailments such as malaria, dengue fever, and others. Diarrhoea and cholera are mostly transmitted by polluted water (WHO, 2008). Furthermore, vector-borne illnesses are particularly sensitive to temperature (Sutherst, 2004).

Cardiovascular and respiratory disorders are examples of non-infectious health consequences. Intense heat and air pollution are major contributors to these health hazards, particularly in metropolitan regions of developing as well as developed nations. These primarily affect children and the elderly (WHO, 2013). In addition, the increased frequency and severity of droughts, storms, and floods might endanger drinking water supplies and destroy agricultural harvests as a result of climate change. (Black et al., 2008) Such damages may enhance food insecurity, contributing to malnutrition among more susceptible populations in underdeveloped countries, particularly in Africa, where 3.5 million people die from malnutrition each year.

Environmental Effects of The Healthcare Industry On Human Health

The healthcare industry is essential to fostering and preserving people's and communities' wellbeing. However, it is important to recognize that this sector also has significant environmental impacts that can affect human health. The healthcare sector's impact on the environment has garnered increasing recognition for the significant implications it has on human health. Increasingly, the healthcare sector is being acknowledged for its substantial environmental footprint, with approximately 10% of global greenhouse gas emissions being generated by healthcare activities alone. This startling result emphasizes how crucial it is for healthcare leaders and providers to take immediate steps to reduce greenhouse gas emissions. One of the key contributors to the healthcare sector's environmental impact is its significant energy and material consumption. This includes the emissions produced from the operation of healthcare facilities, the manufacturing of medical devices and pharmaceuticals, and the carbon impact of transportation within the healthcare system. These emissions contribute towards changes in the climate and global warming, which have detrimental effects on the well-being of humans. Given that climate change and

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environmental pollution are the biggest risks to human health and biodiversity, these environmental effects have wide-ranging effects. (Marghalani et al., 2023).

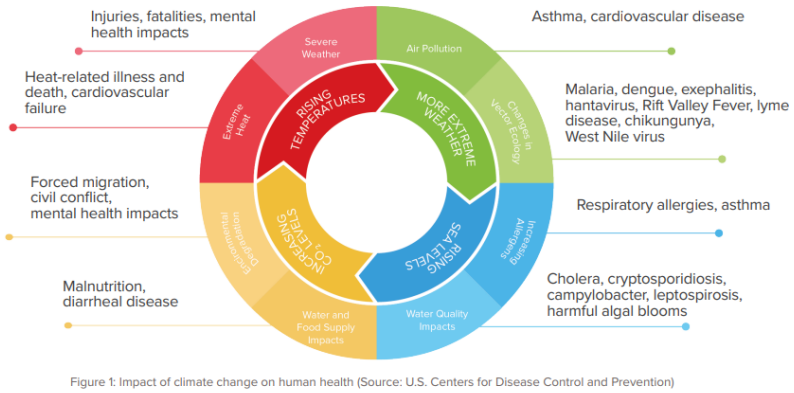

Figure 1: Impact of climate change on human health (Source: U.S. Centers for Disease Control and Prevention)

FIGURE 1
IMPACT OF CLIMATE CHANGE ON HUMAN HEALTH (SOURCE: US CENTRE FOR DISEASE CONTROL AND PREVENTION)

In addition to the direct impact on the environment, the healthcare sector also indirectly affects the environment through wasteful practices and unsustainable procurement methods. Waste generated by the healthcare sector, including medical waste and packaging materials, contributes to environmental pollution and can have adverse effects on ecosystems and human health. Furthermore, the procurement of resources and materials within the healthcare sector, such as pharmaceuticals and medical equipment, often involves the extraction of finite resources and the generation of waste. This further exacerbates the sector's environmental impact and contributes to the depletion of natural resources. These environmental impacts not only harm the environment but also have long-term consequences for human health. For instance, climate change can lead to increased heatwaves, worsening air quality, changes in infectious disease patterns, and the spread of vector-borne diseases such as malaria and dengue fever.

Healthcare Emissions Globally

An estimated 5% of all worldwide emissions are attributable to the global healthcare sector, which is among the largest contributors to greenhouse gas emissions. This percentage has been steadily increasing over the years, rising from 4.9% in 2018, 5.2% in 2019, 6.1 in 2020, 6.9 in 2021 and 7.2 in 2022. These emissions stem from various sources within the healthcare sector.

Healthcare Without Harm (HCWH) released a report in 2019 that analyzes healthcare's environmental impact and role in climate change on a worldwide scale. (Karliner et al., 2020) highlighted the primary sources of healthcare emissions and used data from 43 industrialized and developing nations. The report's main findings include the fact that the healthcare industry is the fifth-largest emitter of CO2 globally, accounting for 4.4% of net world emissions. Another study that looked at the entire environmental impact of global healthcare, encompassing its supply chain, forecasts a global carbon footprint of 4.6%.

According to research by Health Care Without Harm (HCWH), the global healthcare industry is accountable for 4.4% of all greenhouse gas emissions. The healthcare industry is responsible for 8.5% of all domestic emissions emits more greenhouse gases than any other industry worldwide. This high proportion can be ascribed to the fact that healthcare facilities

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operate at high carbon intensity levels and that the healthcare supply chain comprises the production of products and services that increase emissions.

This finding highlights the need for the healthcare industry to address its environmental impact in order to mitigate climate change and reduce global warming. The emissions from the healthcare sector arise from various activities such as patient transport, heating of healthcare facilities, and procurement of equipment and pharmaceuticals. Additionally, the healthcare sector's contribution to greenhouse gas emissions varies across different countries. (González et al., 2018).

(Karliner et al., 2020) The key contributors to the healthcare industry's carbon footprint are energy use, transportation, and the product supply chain. 17% of the industry's worldwide footprint is made up of emissions coming straight from healthcare facilities and vehicles owned by the industry. 71% of emissions emanating from the manufacturing, transportation, and disposal of goods including food, equipment, and medications, are associated with the healthcare supply chain.

Emissions from Healthcare Waste

(Nakić et al., 2021) Healthcare waste emissions are a substantial source of greenhouse gas emissions and climate change. Multiple reports claim that the healthcare sector is in large part accountable for the world's greenhouse gas emissions. According to a global review of healthcare waste in relation to Covid-19, the industry generated hundreds of thousands of tons of garbage due to the manufacture of vaccines, protective equipment's like masks and hand gloves , and other associated products. The prolonged COVID-19 epidemic, which has necessitated widespread use of personal protective equipment and a natural increase in laboratory testing for infections is to blame for this rise in waste output.

Furthermore, the increase in waste generation in the healthcare sector has resulted in an intensified focus on waste production and handling, as well as its impact on climate change. According to statistics, the healthcare sector alone accounted for 8.5% of greenhouse gas emissions in 2018, which equates to approximately 553 Mt CO2e. This highlights the significant contribution of healthcare waste to overall greenhouse gas emissions and the urgent need for mitigation strategies. It is not just the developed nations like United States that the healthcare industry contributes to greenhouse gas emissions and climate change. (Lenzen et al., 2020) looked at all facets of how the global healthcare business impacts the environment, encompassing the supply chain, and forecasts a global carbon footprint of 4.6%.

(Chauhan & Singh, 2016) Globally, the waste generated by the healthcare industry accounts for a large amount of its carbon footprint, producing huge quantities of harmful pollutants as well as GHG emissions. According to the WHO, improper management of healthcare waste puts the health of over half of the world's population at risk (Saito et al., 2018). Similar to other industries, the healthcare sector produces a sizable amount of trash, yet it is unclear how much of this originates from clinics. (Frumkin, 2021)The majority of medical waste is either burned or thrown away in landfills, which releases harmful air pollutants and CO2e emissions. This is something that more and more healthcare workers are worried about, especially because COVID-19 has increased healthcare waste (da Silva Alcântara Fratta et al., 2019).

Healthcare Costs and Decoupling

Healthcare costs have become a major concern worldwide, and the need for effective strategies to decouple healthcare spending from economic growth has become crucial. The increasing demand for healthcare services, driven by changing demographics and rising multi-morbidity rates, combined with chronic healthcare staffing shortages, has led to a

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growing strain on healthcare systems (Åhlin et al., 2023). These factors, along with the annual acquisition of larger portions of the national GDP by healthcare systems, have reduced the willingness of policymakers to continuously provide the financial support that the healthcare sector requires (Åhlin et al., 2023). This decoupling of healthcare costs from economic growth is a complex issue that requires a multifaceted approach. One potential solution is for healthcare professionals to play a proactive role in shaping their future jobs and improving healthcare systems (Romeo et al., 2020). By taking an active role in improving healthcare delivery, professionals can contribute to the overall goal of providing high-quality care while also working towards reducing costs. Healthcare professionals can achieve this by adopting strategies to improve efficiency and reduce waste in healthcare practices.

Globally, the waste generated by the healthcare industry accounts for a large amount of its carbon footprint, producing huge quantities of harmful pollutants as well as GHG emissions. According to the Royal Australasian College of Physicians' (RACP) research 'Climate Change and Australia's hospital Systems,' bushfires in Australia would kill 1000 people, cost the hospital system $69 million, and the overall economy $10 billion by 2030 (Smith, 2021). Reduced emissions from healthcare clinics would help to decouple the operations of the Australian healthcare system from its emissions.

RESEARCH METHODOLOGY

To find the sustainability studies on healthcare clinics and ascertain whether there is a gap in the body of knowledge on decarbonizing healthcare clinics, a preliminary exploratory investigation was carried out.

The preliminary exploratory search was carried out relying on following sources Table 1

Table 1
SOURCES FOR EXPLANATORY SEARCH

Sl no.	Sources
i.	ProQuest
ii.	Scopus
iii.	Google Scholar (Keywords on healthcare and sustainability)
iv.	The Curtin Library Catalogue

After explanatory search, structured literature search was performed via numerous sources. Some of the sources are listed Table 2 & 3

Table 2
SOURCES FOR STRUCTURED LITERATURE

Sl no.	Sources
i.	Conference Papers
ii.	Annual Reviews
iii.	Scopus
iv.	Web of Science
v.	The Curtin Library Catalogue
vi.	Google Scholar

Table 3
SEARCH TERMS USED FOR CONDUCTING A STRUCTURED LITERATURE REVIEW

Industry	Sustainability	Emissions	waste
Health business	Ecological footprint	Carbon footprint	Waste
Small health business	Sustainability	CO2	Single use
Health clinic	Decarbonization	Pollution	

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Healthcare	Net zero	Emission	
Allied health	Circular economy		
Challenges & opportunities	Environment		

Data Analysis

In order to conduct a qualitative assessment, the articles were analyzed critically, and finally arranged chronologically round the objectives of this study. Information has been juxtaposed via textual and content analysis. The patterns and trends observed in the research help identify the elements driving the decarbonization of healthcare clinics and the broader transition to sustainable healthcare.

RESULTS

Decarbonization Efforts by Hospitals

Hospital decarbonization has been the subject of a sizable amount of research and writing. This encompasses the need to lessen ecological footprints, the advantages to the economy, society, and environment as well as, in certain cases, the details of how to implement these changes (Agostinho & Potra, 2023). To assist healthcare facilities in decarbonizing, it is advantageous to discuss and depend on pertinent elements of this information.

Hospitals all across the world are being pushed to decarbonize and reduce their environmental impact. The "Race to Zero" program, which aims to decrease emissions in half by 2030 and achieve net-zero emissions by 2050, has been joined by over 3,000 healthcare institutions from 18 different nations. (Holzmueller, 2020) Hospitals frequently use eight domains to efficiently reduce their emissions footprint: carbon-free waste management), renewable energy use, net-zero emissions health structures, completely emission-free transport, sustainable food, strengthening the effectiveness of the health sector and decarbonizing supply chains, including minimizing single-use items and

Improved sustainability metric reporting is a feature that has helped hospitals reduce their carbon footprint (Tennison et al., 2021). Large healthcare organizations track, measure, and make improvements to a variety of environmental factors, including waste tonnage and predicted CO2e emissions from power use (Hensher & McGain, 2020). To efficiently attain net-zero, more broad, standardized, and mainstream measurements and reporting are required. An agreed-upon comparable set of measurements to record and assess progress in healthcare facilities would be beneficial.

Strategies to Achieve Decarbonization

The assessment of the literature revealed that there was much less research especially focused on reducing the ecological footprint or carbon footprint of healthcare facilities. Particular concepts of how healthcare clinics may effectively lower their emissions footprint and decarbonize their operations emerged from the little research. The four key areas of action—energy, waste, behaviors and attitudes, and procurement and supply chain—were made clear. provides a helpful manual for medical clinics. Below, these subjects are covered in more detail Table 4.

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Table 4 KEY AREAS ADOPTED FOR DECARBONIZING	
Sl No.	**Areas**
i.	Energy
ii.	Waste
iii.	Behavior & attitude
iv.	Sustainable Procurement

Energy

(Fathy et al., 2021) Clinic energy consumption can be lowered by energy efficiency techniques and behavioral changes. Systems can be turned off overnight, lights and machinery turned off when not in use, and low-power illumination can be used. Fans consume far less energy than air conditioners and may drop room temperature by 3 degrees, making them an ideal way to minimize the amount of energy required in clinics. Additional efficiency benefits can be realized by purchasing more energy- and water-efficient equipment. Healthcare clinics may minimize their carbon footprint by switching to a lower-emissions energy source. Solar panels on the roof will minimize the quantity of electricity pulled from the fossil fuel-intensive grid while increasing the use of self-generated energy. (Wang et al., 2021) Telehealth appointments eliminate the need for the patient and medical practitioner to physically visit the clinic. When used properly, telehealth appointments significantly reduce energy emissions . One instance is at a pre-operative assessment center, which used telehealth appointments where appropriate and lowered the facility's CO2 emissions by 31%.

Waste

(Holzmueller, 2020) Reducing waste in a hospital context has been demonstrated as being one of the more efficient decarbonization initiatives a facility can do. Reduced waste has a dual advantage in terms of lowering emissions: using a lesser amount of product consumes lower resources and energy, and less trash implies less emissions from landfill or recycling operations. Waste reduction demands both supply chain and operational/behavioral changes (Skoog & Backman, 2020). The first stage in the waste hierarchy is to prevent the item in its initial place. Changing to paperless offices is one way to prevent using paper in the first place. An excellent next step is to adopt items made of plastic-alternative materials such as bamboo that may be easily broken and recycle (Shafqat et al., 2020). Alternatively, purchasing items made of recyclable plastic reduces overall waste and emissions (Zheng & Suh, 2019). Setting regulations to re-use items is preferable to recycling, but if that is not feasible, recycling is the next best alternative.

Attitude/Behaviour Change

(Hedlund-de Witt et al., 2014) The necessary adjustments to decarbonize health clinics might be swiftly accelerated through behavior modification and better attitudes toward sustainability. More favorable views toward decarbonization would encourage the adoption of regulations as well as reform in other areas, such pushing energy corporations and supply chains to decarbonize. Although the problem of is universally acknowledged by healthcare professionals, there appears to be a barrier to action within their clinical persona. To address this, it has been discovered that pro-environmental behavior change in a hospital setting has needed leadership and organizational change. (Kotcher et al., 2021) Effective training will

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assist healthcare workers transition from knowledge and concern about sustainability to motivation and action which is a factor in organizational transformation.

Sustainable Procurement

Sustainable procurement in healthcare is an emerging practice that aims to promote the integration of environmental, social, and economic considerations into the procurement process in order to promote long-term sustainability and resilience in the healthcare sector. By implementing sustainable procurement practices, healthcare organizations can minimize their negative environmental impacts, improve health outcomes for patients, support local communities, and achieve cost savings in the long run.

The "Sustainable Healthcare Procurement Guide" is a useful resource that includes guidelines and a strategy for developing a program and governance structure for promoting sustainable health procurement in the healthcare sector. This guide is an important tool for healthcare organizations to ensure their procurement processes align with sustainable practices and contribute to environmental and social responsibility. (Ullah et al., 2021) Implementing sustainable procurement practices in the healthcare sector is crucial for promoting a more environmentally and socially responsible approach to healthcare delivery. Sustainable healthcare procurement involves making procurement decisions that minimize negative environmental and social impacts, while also considering economic factors. By following the guidelines outlined in the "Sustainable Healthcare Procurement Guide," healthcare organizations can take steps towards reducing their carbon footprint, minimizing waste generation and promoting the use of environmentally friendly products and services.

(Sepetis et al., 2022) Sustainable healthcare procurement is essential for mitigating the negative impacts of healthcare activities on the environment and community. It ensures that healthcare organizations are sourcing products and services in a manner that is ecologically responsible, socially equitable, and economically viable. Furthermore, sustainable healthcare procurement can contribute to the overall goal of achieving a more sustainable healthcare system.

(Karliner et al., 2020) This indicates that choosing more ecologically friendly product can result in significant reductions in carbon footprint. Examples involve opting for "green" cleaning products (Ex: reusable, recycled, or recyclable), minimizing the use of single-use items, buying products produced from a plastic substitute etc.

DISCUSSION

Barriers to Healthcare Clinic Decarbonisation

The barriers to healthcare clinic decarbonisation are multifaceted and can hinder the progress towards achieving sustainable and low-carbon healthcare systems. Some of the key barriers include:

Lack of awareness and understanding: Many healthcare professionals and administrators may not be fully aware of the environmental impact of healthcare operations and the potential benefits of decarbonisation. This lack of awareness and understanding can lead to a resistance to change and a reluctance to prioritize decarbonisation efforts.

1. Inadequate financial resources: Implementing decarbonisation initiatives in healthcare clinics requires financial investment. This investment may include upgrading equipment and infrastructure, adopting renewable energy sources, and implementing sustainable practices. However, healthcare clinics often face budget constraints and limited financial resources, making it challenging to allocate funds for decarbonisation initiatives.

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2. resistance to change: Healthcare clinics frequently operate under long-established institutions and processes that do not encourage decarbonization. Healthcare practitioners, for example, may be hesitant to use telemedicine and other low-carbon technology for care because of worries about patient acceptability, confidentiality, and privacy. Furthermore, a lack of understanding and education about the numerous advantages and techniques of decarbonisation among healthcare professionals and workers can be a substantial hurdle.

(D'Costa et al., 2020) In addition to the common themes that emerged as barriers to healthcare clinic decarbonization includes: lack of government policy on environmental sustainability, shortage of funds to spend on environmentally superior products, and developing supply chain companies that fail to market lower footprint products, among others.

(Dunphy, 2013) Another obstacle for decarbonisation transition is a lack of systematic policy change and political leadership. This includes the absence of legislation, incentives, and defined policy objectives or directives. Even if there are sustainability rules, failure to adhere sustainable measures may result from a lack of enforcement and government assistance (Kazançoğlu et al., 2021). This implies that if an environmental health strategy is formed, it must be executed in a certain way. Because healthcare staff are resistant to applying decarbonization methods in their working life, recommendations from professional groups and industry authorities would help accelerate the change.

(Kazançoğlu et al., 2021) The most often reported obstacle in the literature is a lack of funding for decarbonization programs. It has been demonstrated that the healthcare industry's historical emphasis on economic rationality serves as a hindrance to environmentally conscious behavior as well. There is no incentive for businesses to switch to environmentally responsible behaviour.

(Kazançoğlu et al., 2021)Social factors, such as a lack of information about larger sustainability concerns and healthcare sustainability, are obstacles to transition. Healthcare professionals have said that it is challenging to determine the financial advantages of using sustainable initiatives. From employees in the healthcare industry to the general public, there is a lack of education on sustainability issues, a lack of knowledge of them, and an underestimate of the severity of their effects. Change is hampered by the fact that evidence-based ecologically friendly practices are not widespread across many industries.

(Kazançoğlu et al.,2021) A further significant obstacle to decarbonization is a lack of appropriate infrastructure. This holds true for medical clinics since the majority lack adequate procedures for managing healthcare waste and are limited in their ability to recycle medical equipment and technology so that they can continue to be used after their useful lives.

(Kotcher et al., 2021) Lack of training has frequently been identified as a transitional hurdle. It is more probable that personnel will execute/take action on policy and operational adjustments successfully if they are aware of the advantages of environmental sustainability. The implementation of sustainability reforms in healthcare institutions is facilitated through sustainability training, which fosters a sense of teamwork and involvement among healthcare workers.

Opportunities/Benefits to Clinic Decarbonization

The decarbonization of healthcare clinics offers numerous benefits to both the environment and the healthcare industry. By implementing environmentally conscious practices and technologies, healthcare clinics can reduce their carbon footprint and contribute to overall sustainability efforts. These benefits include:

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1. Reduced greenhouse gas emissions: By implementing decarbonization strategies, healthcare clinics can significantly reduce their greenhouse gas emissions. This contributes to global efforts in mitigating climate change and its impacts.
2. Improved air quality: Transitioning to clean and renewable energy sources, such as electrification, can greatly improve air quality in and around healthcare clinics. This is particularly important for patients with respiratory conditions and staff members who are constantly exposed to indoor and outdoor air pollutants.
3. Enhanced public health: The transition to clean energy and decarbonisation can have a direct positive impact on public health. By reducing greenhouse gas emissions and improving air quality, healthcare clinics can contribute to the prevention of respiratory diseases and other health issues associated with air pollution.

(Eckelman et al., 2018) Clinic decarbonisation may allow healthcare workers to gain visibility as leaders in climate change management and resilience. Given the relevance of climate change to public health, healthcare professionals may advocate for environmentally sustainable reform within the healthcare industry. Healthcare professionals may directly lobby governments on climate-health policy, educate the public and media on the health risks of climate change, and decarbonize their own clinics or facilities (Kotcher et al., 2021). In a world when public trust in governments and experts is fading, health professionals continue to have high esteem, making it the more vital that health professionals articulate the need to decarbonize our economy, particularly the health sector.

(Dzau et al., 2021) Clinic decarbonisation may entail improving sustainability education for healthcare professionals, which will improve their understanding and treatment for patients suffering from climate-related health issues. Improving climate change education for health professionals, as well as decarbonization, would boost action for larger sustainability agenda shifts. (Gomez et al., 2021) Discovered that following a brief formal climate-health training, health professionals' intentions to modify personal behaviors and future clinical practice increased. Incorporating indigenous health knowledge into international and public health modules, as well as emphasizing the importance of the natural environment in healthcare, are examples of practical sustainability education for healthcare clinics.

CONCLUSION

In conclusion, the decarbonisation of healthcare clinics is crucial for addressing the global challenge of climate change. We can significantly lower the sector's contribution to global emissions through the adoption of strategies to reduce the carbon footprint of healthcare, such as promoting wellness and disease prevention, assisting patients in overseeing their long-term conditions more effectively through education and care planning, creating lean clinical pathways, and choosing environmentally friendly options like cleaner inhalers and anaesthesia. Moreover, this shift towards decarbonisation in healthcare can serve as a catalyst for action in other sectors, promoting a more sustainable economy as a whole. By focusing on reducing the amount of healthcare needed and the carbon intensity of services, we can achieve significant progress in decarbonising the health sector. By reducing greenhouse gas emissions and transitioning to clean energy sources, healthcare clinics can contribute to the overall goal of global decarbonisation. This not only benefits the environment but also improves air quality and enhances public health. Transitioning to clean and renewable energy sources, such as electrification, can greatly reduce air pollutants and mitigate the risks associated with respiratory diseases. By prioritizing environmentally conscious practices and technologies, healthcare clinics can play a significant role in reducing their carbon footprint and creating a more sustainable future for both patients and healthcare

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professionals. Furthermore, by prioritizing ethical resource allocation, procurement, and waste management, we can further reduce the carbon footprint of healthcare.

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