

PRINCIPLES OF SUSTAINABILITY IN HEALTH CARE

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ABSTRACT

Sustainability in healthcare can be viewed as a measure of quality that emphasizes the responsibility of healthcare providers to their patients not just now, but also in the future. This broader perspective considers how our health services affect both people and the environment, thereby impacting the health of our community[1]. As a result, a sustainable strategy will broaden the definition of value in healthcare to include social and environmental effects in addition to financial costs. By taking advantage of the expanding quality improvement movement, this could contribute to the development of a more sustainable healthcare system and enhance patient experiences. The study focusses on a theoretical framework for sustainable healthcare practices, which covers topics such as the features of sustainable healthcare practices, the objectives of sustainable practice in the healthcare sector, strategies for successfully implementing sustainability in healthcare, and the impending difficulties in implementing sustainable healthcare[2]. This study provides a thorough account of the evolution of the notion of sustainability for scholars and healthcare practitioners. Additionally, it examines external ways to enhance the implementation of sustainable practices, examines the reasons for incorporating sustainability into healthcare, and talks about the difficulties in doing so.

Keywords: Sustainability, healthcare, social sustainability, economic sustainability, environmental sustainability

I. INTRODUCTION

Sustainability involves integrating environmental health, social equity, and economic vitality to build thriving, healthy, diverse, and resilient communities for this generation and future ones. This practice acknowledges the interconnectedness of these issues and requires a systems approach that embraces complexity. Healthcare sustainability refers to a system that addresses the population's current health needs without jeopardising future generations' health[3]. It emphasises the intrinsic connection between human health and the environment, highlighting the necessity of taking actions that promote the well-being of both people and the planet[4]. Sustainable healthcare recognizes the three dimensions of sustainability: environmental, economic, and social. It aims to provide healthcare that does not harm the environment, either now or in the future, while also being cost-effective and having a positive social impact.

II. CORE PRINCIPLES OF SUSTAINABILITY IN HEALTHCARE

Sustainability is essential for achieving a harmonious coexistence among human society, the environment, and the economy, as illustrated in Figure 1. To build a greener and more sustainable future, it is crucial to understand and embrace the principles of sustainability.

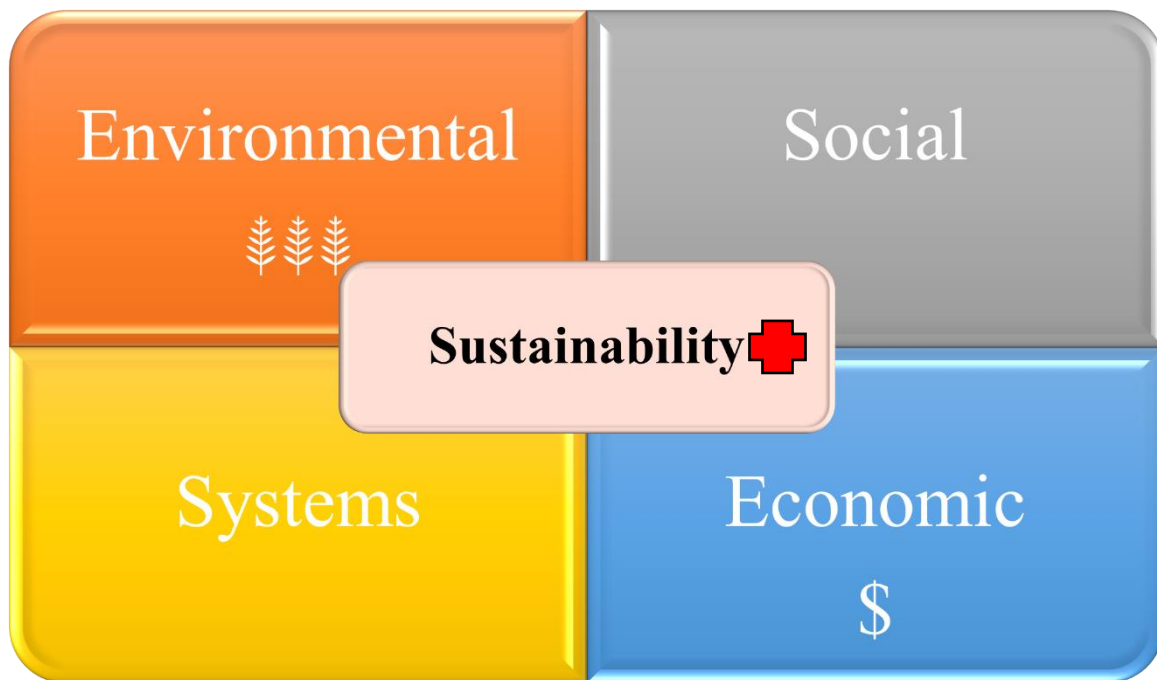


Figure 1. Pillars of sustainability: social, environmental, economic, and systems sustainability in the context of healthcare.

A. ENVIRONMENTAL SUSTAINABILITY

Environmental sustainability in healthcare aims to improve, maintain, or restore individual and community health while reducing negative impacts on the environment. It also seeks to capitalize on opportunities to enhance and repair the environment for the benefit of both current society and future generations. Taking action for environmental sustainability can bring numerous benefits to patients, healthcare providers, the health workforce, and the essential functions of the health system[5]. Additionally, it can help reduce environmental health risks. Implementing these measures can lower costs and enhance the resilience of healthcare systems[6]. The following sections discuss various methods for maintaining environmental sustainability within the healthcare system, as illustrated in Figure 2.



Figure 2. Environmental Sustainability involves energy efficiency, water conservation, waste management, education and policy integration and reduction of pharmaceutical waste.

➤ **Energy Efficiency**

The healthcare sector consumes a substantial amount of energy due to its requirement for continuous operations, advanced medical equipment, and climate control. To address this, many facilities are utilizing renewable energy sources like solar and wind power[3]. Additionally, they are optimizing building designs by incorporating energy-efficient HVAC systems and insulation to enhance energy management.

➤ **Waste Management**

Hospitals produce a significant amount of medical, hazardous, and general waste, a large portion of which often ends up in landfills. To effectively manage hospital waste, it is essential to establish strong recycling and composting programs, reduce the use of single-use plastics, and implement proper segregation practices for biohazard, electronic waste, and general waste.

➤ **Water Conservation**

Healthcare facilities consume substantial water resources for sanitation, sterilization, and cooling. A viable solution is to install low-flow faucets, toilets, and showers, and recycle greywater for non-potable uses, such as landscaping or cooling.

➤ **Education and Policy Integration**

To achieve sustainability goals in healthcare systems, it is essential to train healthcare professionals in sustainable practices, integrate environmental sustainability into healthcare policies, and collaborate with governmental and non-governmental organizations to implement green healthcare initiatives.

➤ **Reduction of Pharmaceutical Waste**

The disposal of unused medications and pharmaceutical waste poses risks to ecosystems and water supplies. Implementing take-back programs for unused medications, reducing over prescription, aligning practices with evidence-based guidelines, and ensuring safe disposal methods are essential to protect the environment.

B. ECONOMIC SUSTAINABILITY

Economic sustainability encompasses practices that foster long-term economic growth while protecting the social, environmental, and cultural dimensions of a community. It seeks to harmonize economic development, resource efficiency, social equity, and financial stability. Economic sustainability in healthcare systems focuses on how to operate efficiently, balancing patient needs and improving health outcomes with the available resources[7]. There are several key areas for healthcare companies to consider, as illustrated in the accompanying figure 3.

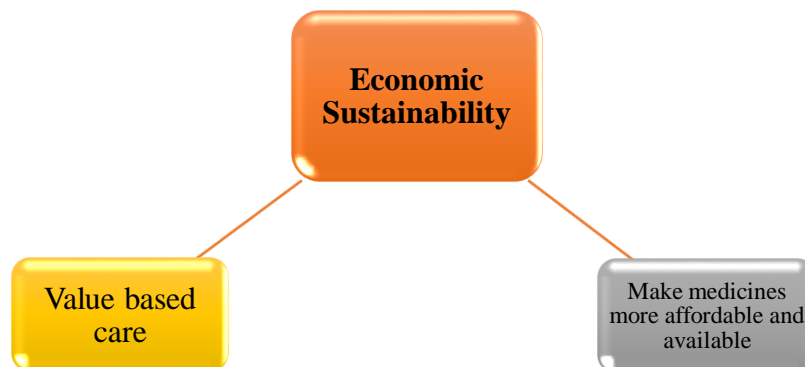


Figure 3. Economic sustainability involves value-based care and making medicines more affordable and available.

➤ **Value-based care**

Emphasize patient outcomes rather than a "pay-per-pill" model. For instance, if a medication fails to achieve agreed-upon outcome criteria, a health plan could be charged less. A value-based approach also involves dismantling silos within health system budgets and exploring opportunities to share both costs and savings[8].

➤ **Make medicines more affordable and available.**

This may include new business models that utilize sustainable access strategies to make medicines broadly available across various populations at different socioeconomic levels, aiming for maximum impact at scale.

C. SOCIAL SUSTAINABILITY

Social sustainability involves creating successful, sustainable environments that enhance well-being by understanding the needs of the people who live and work in those places. A community can develop processes and structures that not only meet the needs of current members but also support future generations in maintaining a healthy community[9]. Social sustainability in healthcare involves delivering services that are equitable, inclusive, and culturally competent. This approach is essential for improving the well-being of both healthcare workers and patients. A few key points on maintaining social sustainability in healthcare are illustrated in Figure 4.

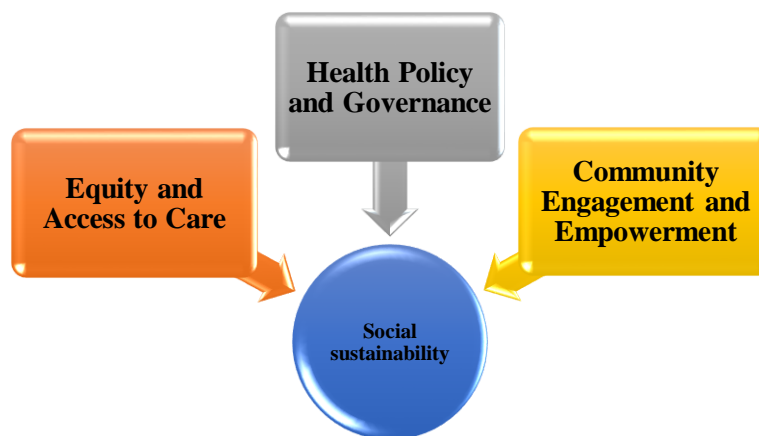


Figure 4. Social Sustainability involves equity and access to care, health policy and governance, and community engagement and empowerment.

➤ **Equity and Access to Care:**

Everyone should have equal access to health services, regardless of gender, economic status, or other factors. Health equity means that everyone has the opportunity to be healthy and receive the best care.

➤ **Community Engagement and Empowerment**

The focus is on engaging communities in tackling issues that impact their well-being. This process involves building trust-based relationships and collaborating to create more effective health interventions, programs, services, and policies[4]. It also aims to empower communities to become key players in their health.

➤ **Health Policy and Governance**

Health policy and governance refer to the management and oversight of a country's healthcare system. This includes the policies, regulations, and institutions that shape it. The primary goal of health policy and governance is to ensure that healthcare is accessible, affordable, and of high quality for everyone.

III. IMPLEMENTATION STRATEGIES FOR SUSTAINABLE HEALTH CARE

Sustainability involves assessing systems, including the infrastructure of buildings and organizational practices, while implementing measures that align with sound budget planning. Healthcare facilities must have reliable and resilient engineering systems to ensure patient safety[10]. It is essential for these facilities to identify solutions that are effective within the unique context of healthcare shown in figure 5.

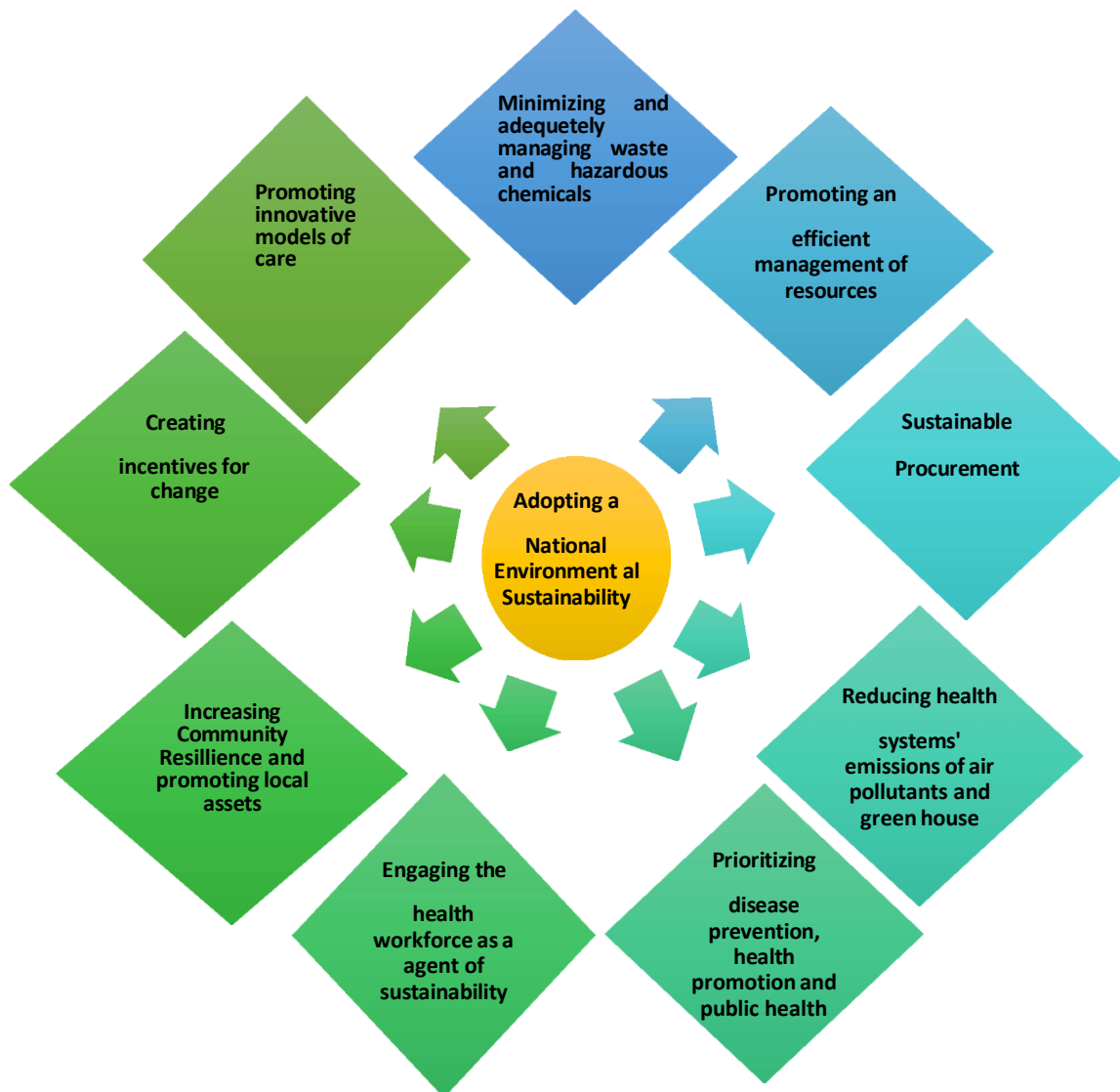


Figure 5. Adopting a National Environmental Sustainability Policy for Health System

- Lower utility bills and other operational costs
- Elevated brand and positive image
- Greater employee satisfaction and retention
- Patient and community trust
- Lower carbon footprint and environmental impact
- Install low-flow toilets, faucets, and shower heads
- Replace flush valves on toilets and replace outdated pump systems
- Educate and train staff on how to implement green practices in the workplace and at home.
- Establishing a sustainable waste management program can put a limit on the amounts of wastes undergoing incineration or being transferred to landfills, and eliminate unnecessary sources of waste[11].

IV. BENEFITS OF SUSTAINABLE HEALTHCARE

Sustainability initiatives provide substantial environmental and financial advantages for organizations, enabling hospitals and care systems to prosper both now and in the future[4]. For initiatives to be truly sustainable, they must endure over time by being financially viable while also benefiting the community and the environment. Furthermore, sustainability should be integrated into hospitals' strategic business plans and serve as the guiding principle for initiatives and infrastructure improvements[12]. Hospitals can save millions through energy efficiency, waste reduction, and sustainable purchasing. These efforts positively impact local community health, promoting sustainability-focused facilities.

V. CONCLUSION

Sustainability in healthcare is essential from moral, professional, and practical standpoints. By adopting the principles of environmental stewardship, economic viability, social responsibility, patient-centred care, and resilience, healthcare systems can achieve better outcomes for both people and the planet. With coordinated efforts, the healthcare sector can pave the way toward a sustainable future that benefits both current and future generations.

REFERENCE

- [1] R. Mehra and M. K. Sharma, "Measures of Sustainability in Healthcare," *Sustainability Analytics and Modeling*, vol. 1, p. 100001, 2021, doi: 10.1016/j.samod.2021.100001.
- [2] C. Munthe, D. Fumagalli, and E. Malmqvist, "Sustainability principle for the ethics of healthcare resource allocation," *J Med Ethics*, vol. 47, no. 2, pp. 90–97, Feb. 2021, doi: 10.1136/medethics-2020-106644.
- [3] M. J. Eckelman, U. Weisz, P.-P. Pichler, J. D. Sherman, and H. Weisz, "Guiding principles for the next generation of health-care sustainability metrics," *Lancet Planet Health*, vol. 8, no. 8, pp. e603–e609, Aug. 2024, doi: 10.1016/S2542-5196(24)00159-1.
- [4] M. Diana Anderson, "Healthcare Sustainability," *American College of Healthcare Executives*, 2024.
- [5] *Environmentally sustainable health systems*. UN City, Marmorvej 51: WHO Regional Office for Europe, 2017.
- [6] F. Mortimer, J. Isherwood, A. Wilkinson, and E. Vaux, "Sustainability in quality improvement: redefining value," *Future Healthc J*, vol. 5, no. 2, pp. 88–93, Jun. 2018, doi: 10.7861/futurehosp.5-2-88.
- [7] E. Nicol, "Sustainability in healthcare: efficiency, effectiveness, economics and the environment," *Future Healthc J*, vol. 5, no. 2, p. 81, Jun. 2018, doi: 10.7861/futurehosp.5-2-81.
- [8] Tunde Szabo, "How to make healthcare investments supercalifragilisticexpialidocious," *European Investment Bank*, Feb. 2019.
- [9] S. Capolongo *et al.*, "Social sustainability in healthcare facilities: a rating tool for analysing and improving social aspects in environments of care.," *Ann Ist Super Sanita*, vol. 52, no. 1, pp. 15–23, 2016, doi: 10.4415/ANN_16_01_06.
- [10] C. Richie, *Principles of Green Bioethics*. Michigan State University Press, 2019. doi: 10.14321/j.ctvhrd1wq.
- [11] "5 Ways to Start a Sustainability Program in Healthcare Facilities," *Green Business Benchmark*, Feb. 2021.
- [12] Rachel Marley, "Sustainability in healthcare: Investing today for a healthier tomorrow," *Healthcare Transformers*, Apr. 24, 2024.