

Canada's healthcare sustainability: A holistic perspective on emerging challenges

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Abstract—Continued debate on privatization initiatives within the Canadian healthcare system has brought much-needed attention to sustainability issues and the emerging challenges faced by this domain. Predicaments that deal exclusively with public or private health service challenges should not derail healthcare sustainability efforts. Applying an appropriate framework is fundamental for ensuring the success of healthcare sustainability initiatives. Such a framework would not only allow better understanding of sustainability related challenges, but would also pave the way for the deployment of manageable solutions. This paper highlights such challenges and, through the use of a conceptual framework, provides a holistic perspective on how the core components of sustainability can be properly employed in healthcare. The primary objective of a successful healthcare system improvement is not merely to justify the current rate of spending, but to take into account the various aspects of sustainability. The discussion also highlights how sustainability can be leveraged to solve challenges that have a greater consequence, namely, a long-term impact on healthcare.

Keywords—healthcare, sustainability, framework

I. INTRODUCTION

“Sustainability” has been a buzzword since the mid-1980s, and the current economic climate has undoubtedly refocused efforts on sustainability issues [1], [2] [3], particularly towards healthcare.

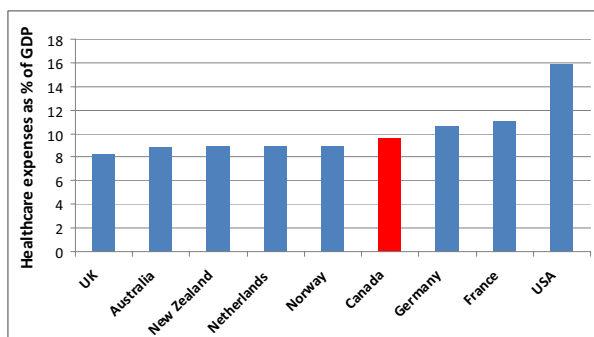


Figure 1. Healthcare expenses as percentage of GDP, 2006. [3]

Initially, sustainability was associated solely with resources. Gradually, this changed, and focus shifted to green aspects of sustainability. New strategies were proposed to address eco-

friendliness in every domain, and healthcare was not far behind in adopting sustainability [4][5].

A better understanding of the different dimensions of sustainability is imperative [6] for the future success of healthcare [2]. This understanding can inform a systematic approach to healthcare that can bolster efforts to deliver sustainable and quality care services. Sustainability has been defined and redefined based on context and the current affairs items which attract top priority [1]. The holistic nature of sustainability has complicated the process of allocating a generic definition. The World Commission on Environment and Development's Brundtland Report [7] defines sustainability as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*” Using this definition, this paper presents a sustainability framework that provides the necessary impetus for an improved and efficient care delivery system within the Canadian healthcare domain.

II. CANADIAN CHALLENGES

Originally, healthcare sustainability focused on aspects of the continuity of healthcare programs (Canada, UK, Australia and many European countries) and was more oriented toward a project-based approach within the healthcare domain. Unfortunately, such an approach is myopic and may not necessarily reflect the true nature of healthcare sustainability. In addition, in the context of healthcare, some experts limit sustainability to policy making, which devalues its depth [8, [9], [10]. Others underline the importance of healthcare sustainability, restricted to fiscal terms [9] [10], while a few approach the concept from the ability of supporting or continuing social healthcare [9][10]. Such narrow contemplation only results in diluting the importance of healthcare sustainability [8] [9], [10].

In Canada, sustainability issues became more prominent in the 1990s [2], which, coincidentally, was a period of economic recession. Canadian healthcare sustainability concerns were triggered by the limited resources available to this domain, and have been the focus since 2000 [2]. Many Canadian provinces have highlighted these concerns in their annual health act reports [11]. Strategic investments in infrastructure, healthcare, human resources, and innovation have been driven by sustainability initiatives. For example, the Canada Health Act ensures the continued availability of publicly managed quality

healthcare to the population while maintaining its fiscal sustainability [11]. The most widely accepted metric to measure fiscal sustainability has been the process of comparing healthcare expenses as a percentage of the gross domestic product (GDP) [8]. In 2006, Canada's investment in healthcare was near the mean value (9%) when compared to nine industrialized countries in terms of total healthcare expenditure as a percentage of GDP (See Figure 1). The total healthcare spending in Canada in 2007 was around \$160 billion [12], a trend which is growing at a rate of approximately 10.6% annually [8][13]. These figures underscore the immense amount of fiscal resources injected into the healthcare sector. Such investments should duly account for the importance of sustainability as well as appreciate its holistic impact on healthcare.

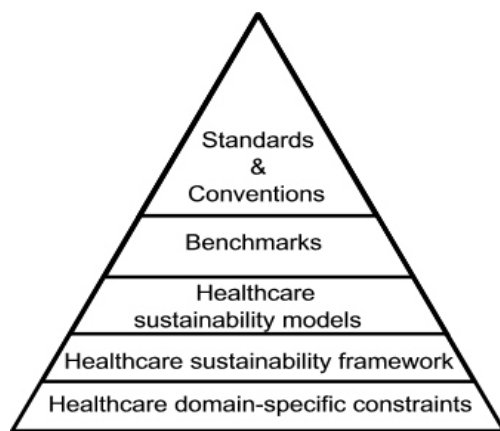


Figure 2. Hierarchical stages for developing a healthcare sustainability.

A number of factors, including technological advances, aging, and general economic growth, operate simultaneously to increase spending. Expenditure has outstripped GDP growth, which has resulted in fiscal sustainability concerns in most countries. The above discussion also points out that all the Canadian sustainability initiatives were predominantly fiscally driven—in its 2008 report on sustainability, even the Health Council Canada refers only to fiscal aspects [2] [14], [15]. Further, all of the provincial chapters of the Canada Health Act cite sustainability in one form or another [11]. For example, in its recent Bill 21, British Columbia has included sustainability as the sixth principle of *Medicare* [16].

This one-sided focus has inadvertently placed healthcare sustainability in the context of fiscal issues only. On the contrary, recently, domains other than healthcare relate sustainability mainly to green issues. Such narrow view has diminished the true strength of sustainability. Our discussion aims to encourage a sustainable view of healthcare from a holistic point of view. Concurrently, we propose a healthcare sustainability framework model flexibly designed so that it can be mapped to the micro and macro challenges the healthcare domain currently faces. This framework is intended to promote multidimensional thinking in healthcare that paves the way to more broad sustainability perspectives and interpretations.

III. HEALTHCARE SUSTAINABILITY FRAMEWORK

In order to establish itself as a dependable mechanism for improvement, any new paradigm must be founded upon a sound framework, have a functional model, and provide standards [5]. Sustainable paradigms for healthcare require a universal guide to enable a complete development process that addresses the key components of sustainability. The sustainability framework proposed in this paper has been developed based on the hierarchical development infrastructure shown in Figure 2. Modeled as layers, each gains strength and builds from the preceding lower layers. Each layer complements the other and provides an interface that promotes the independence, flexibility, and granularity necessary for supporting continuous improvement with a minimal effect on neighboring layers.

With sustainability at its core, the first stage (Healthcare domain-specific constraints) identifies the various inherent constraints specifically related to the healthcare domain. Based on these constraints, conceptual frameworks, which help to understand the various facets of the application domain, can be generated. When these frameworks are applied to specific sustainability scenarios, they may offer fresh opportunities for generating new working models [10], which can be later refined based on explicit project outcomes. When rigorously applied, such models can assist in defining preliminary benchmarks related to the individual aspects of healthcare sustainability. The constant revision of such benchmarks can yield reliable performance metrics, which complete the development stages that eventually deliver acceptable standards and conventions specifically directed at healthcare sustainability [10]. The framework proposed relies on the three principal components of healthcare management: people, process, and organization. These components are further oriented to the three sustainability pillars: economical, social, and ecological [17]. This specific orientation of the principal components of the sustainability paradigm provides specific focus to the framework in terms of the core concepts related to the sustainability challenges mentioned in the following section (See Figure 3.). *Social facet* relates to all the stakeholders including patients, clinical and administrative staff, and the government and general public. Aspects such as the stakeholder's empathy shown towards a patient play a vital role. This provides a unique humanistic perspective and a feel for others so that better care can be delivered at all times. This not only underlines the importance of humanistic values in healthcare but also refocuses the need to sustain such qualities. Leadership is vital, not only to sustain the impetus for better healthcare but also to provide an exemplary approach to continuous improvement in care delivery with sustainability at its core [18] [19]. Professionalism is essential to ensure that for the service provider completes the care delivery process to the best of their abilities. Healthcare training and education is a continuous activity that not only develops a provider's expertise in their field but also keeps them informed of the latest improvements in medicine. In addition, healthcare individuals should be exposed to eco-friendly technology and practices. The idea suggested here is that individuals, namely, healthcare service providers and receivers, should not limit their perspective(s) to self-interest and immediate impacts alone.

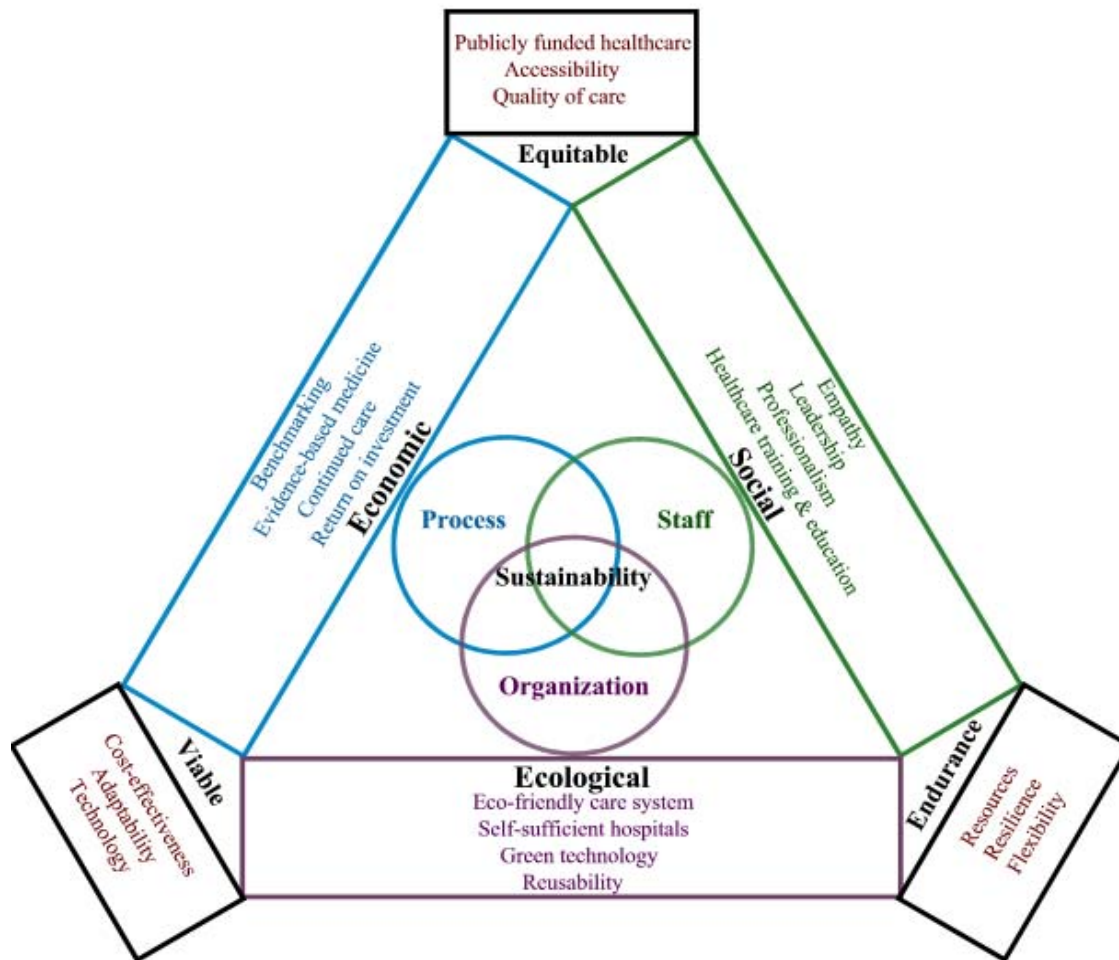


Figure 3. Healthcare sustainability framework.

Rather, a broader view, which can expand their ideas to include not only fiscal and social aspects but also the importance of ecological traits in healthcare, should be considered.

Economic facet relates to the various process-related activities within healthcare organizations. These processes range from continued care with constant improvements to quality at the delivering end to scientifically proven processes such as *evidence-based medicine*. Such improvements to healthcare processes can only be established with appropriate benchmarking that addresses all the related factors. The fiscal process is strongly oriented to benchmarking and has well-established metrics [17]. Similar benchmarking has to be developed for the range of healthcare processes within the context of sustainability. Such practices, if combined with the sustainability agenda, can augment the quality of care delivery. Even though fiscal issues like *return on investment*, fiscal sustainability debates, and economic efficiency are some of the areas which have experienced a lot of attention in healthcare sustainability, the current framework identifies them as critical issues to be addressed but should not deprive the focus necessary for the other facets of sustainability.

Ecological facet refers to the environmental issues that are directly and indirectly related to the healthcare system. For example, hospitals, clinics, and other physical healthcare structures are now being viewed from a technologically green perspective right from the design phase [20]. Currently, reusable and energy-sustaining initiatives are being incorporated into existing and new structures [20]. Because healthcare institutions are energy dependent and innovative, renewable initiatives can support and perpetuate resource conservation [20]. Publicly funded healthcare systems, like that of Canada, can play a vital role in not only implementing these initiatives but also in leveraging their buying power to enforce ecological motives on their vendors, including equipment manufacturers, and suppliers of consumables and pharmaceuticals [18][21].

In addition to these fundamental facets, three qualities related to sustainability are to be nurtured within the healthcare environment, namely the equitable, enduring, and viable nature of healthcare. The *equitable* aspect has its orientation with the humanistic and economical elements related to sustainability. Specifically, attributes of publicly funded healthcare such as

prescription drugs, support, accessibility, and quality of care should not be compromised when aggressively pursuing sustainability. In fact, they should be recognized and improved as a whole [9]. *Endurance quality* relates to the social and ecological aspects of sustainability as shown in Figure 3. Resources should be approached from an ecological point of view and considered based on their ability to influence both current and future generations. Resilience and flexibility are fundamental qualities that are most needed when addressing environmental issues, for they can affect the fundamental way of expediting healthcare services on a day-to-day basis.

Viability relates to the fiscal and ecological side of the framework. Cost-effectiveness should never be compromised while implementing sustainability-driven projects, and acting in haste can be detrimental to the overall sustainability initiative. Adaptability will increase the ease with which such projects can be streamlined. Technological issues play a crucial role in healthcare sustainability. Technology should not be a burden to the environment; rather, it should be aimed at conserving the limited resources without depleting nature. On the clinical front, technological breakthroughs, however detached from sustainability issues, should still be viewed through the lens of sustainability.

IV. CONCLUSION

Performance metrics associated with the qualities described above (equitability, endurance, and viability) will provide the necessary mechanisms for improving support to the quality of health care delivered. These parameters are in accordance with the WHO's healthcare system assessment indicators, which add credibility to these measures [8]. Romanow's report concluded that "*the Canadian healthcare system is as sustainable as we want it to be*", which not only provides ample proof that there is still potential for improvement, but also suggests that the appropriate use of a sustainability paradigm can expedite these improvements [22]. The impetus shown towards fiscal issues (public/private healthcare funding) should not compromise the core components of sustainability. The main objective of a successful healthcare system improvement is not merely to justify the current rate of spending but to take into account all the facets of sustainability as explained in this paper.

As the conceptual framework provided in this discussion is only a guide, more domain-specific sustainability models would strengthen it. In addition, this framework has to be viewed from an evolutionary perspective. Special strategies that address sustainability factors at their core can be developed based on this framework. Such strategies offer appropriate alignment to the gamut of macro/micro-components that are working towards healthcare sustainability. The fundamental objective of this discussion is to ensure a conducive environment for sustainability through a comprehensive framework that provides a basic understanding on how it has to be viewed from a holistic perspective. This will ensure that all future sustainability-based initiatives will have macro vision and a balanced approach. Irrespective of the model, the means by which funding support is provided to healthcare, whether public, private, or joint public-private, must consider the sustainability issues crucial for increasing the overall efficiency of the healthcare delivery process. This consideration will improve quality of life on an individual and collective level

without compromising the future. Due to the theoretical nature of the framework proposed in this paper, further studies on real-time scenarios will provide additional insight into the intricacies of how sustainability can be applied as a holistic tool in healthcare. This exercise will shed more light and suggest modifications for its adoption within future sustainability initiatives in healthcare.

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