

Healthcare Resilience in Trinidad and Tobago: A short report on the Healthy Hospital Initiative at the Sangre Grande Hospital

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ABSTRACT

Objective: To describe the establishment of the Healthy Hospital Initiative (HHI), its activities and accomplishments, challenges and future steps.

Methods: The initiative was implemented at the Sangre Grande Hospital in the Eastern Regional Health Authority (ERHA), one of five Regional Health Authorities in Trinidad and Tobago. A review of personal records maintained by members of the Healthy Hospital Initiative was undertaken. These records included descriptions of the activities, accomplishments and obstacles that the team experienced.

Results: The Healthy Hospital Initiative was launched in November 2019 with the aim of creating an environmentally sustainable health system and improving the physical and mental health of staff and patients. A senior doctor led the initiative and team members included a range of staff, including both clinical and non-clinical professionals who were all volunteers. This allowed for a multi-directional, inclusive approach and created a sense of ownership amongst the staff.

In 2022, several activities were implemented: green spaces, recycling bins, a kitchen garden and staff exercise sessions. In addition, team members participated in training on Pan-American Health Organization (PAHO) Smart hospitals and collaborated with a local non-governmental organisation as well as the University of the West Indies, St. Augustine campus engineering department to develop further projects.

Conclusion: Next steps include promoting similar projects in community health facilities, developing a hydroponics system and, assessing the disaster resilience and carbon footprint of the hospital.

INTRODUCTION

The United Nations define sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Achieving sustainable development requires the interaction of three elements of sustainability: economic, social and environmental. The 17 UN Sustainable Development Goals (SDG) are built on these three pillars and are relevant to health systems. Environmental sustainability and climate change and health are key goals which impact the other SDG.¹⁻³

Small Island Developing States (SIDS), such as those in the Caribbean, are disproportionately impacted by climate change. Additionally, healthcare is responsible for approximately 5% of global emissions.⁴ Thus, health systems within the Caribbean should work towards achieving sustainable health systems by incorporating the three pillars of sustainability and support the achievement of the SDGs. It is important to note that non-communicable diseases (NCDs) accounted for approximately 70% of deaths worldwide between 2006 and 2016.⁵ In the Caribbean, it is estimated that in 2016, NCDs were responsible for 76.8% of deaths in Non-Latin Caribbean nations, excluding Haiti.⁶ This is a heavy burden which is caused by lifestyle, genetic and environmental factors. Hence, our daily practices, diet, activity level, mental health and interaction with the environment will all have an effect on our risk of developing non-communicable diseases.

In Trinidad and Tobago, one main hospital has implemented an initiative to support sustainable healthcare, with an overall goal to improve the wellness in the hospital environment amongst patients and staff members. The initiative incorporates four of the SDGs: good health and wellbeing (SDG 3), responsible consumption and production (SDG 12), climate action (SDG 13) and life on the land (SDG 15). This short report describes the establishment of the initiative, its activities and accomplishments, challenges and future steps.

METHODS

Setting and data collection

The initiative was implemented at the Sangre Grande Hospital in the Eastern Regional Health Authority (ERHA), one of five Regional Health Authorities in Trinidad and Tobago. The ERHA provides health services to approximately one-third the landmass area of Trinidad and serves approximately one hundred and twenty

thousand persons in this catchment area. The Sangre Grande Hospital offers secondary and tertiary health services to the public, inclusive of surgery, maternal care and paediatrics.

Personal records maintained by members of the Health Hospital Initiative were reviewed. These records included descriptions of the activities, accomplishments and obstacles that the team experienced.

RESULTS

1. Description of the Healthy Hospital Initiative

The Healthy Hospital Initiative (HHI) was launched in November 2019 at the Sangre Grande Hospital. The theme of the initiative was 'Healthier bodies, Healthier minds, and Healthier environment' with the aim of creating an environmentally sustainable health system and improving the physical and mental health of the staff and patients.

The initiative was led by a senior doctor and the team members included a range of staff from various departments, including both clinical and non-clinical professionals who were all volunteers. This allowed for a multi-directional, inclusive approach and created a sense of ownership amongst the staff. Team members met on a quarterly basis to discuss potential projects and meetings took place both face to face and virtually to facilitate schedules. Small projects were implemented with the aim of encouraging and motivating staff to participate.

2. Beautification project/green spaces

Prior to the formal establishment of the Healthy Hospital Initiative, beautification projects were implemented. Once the HHI was established, further areas were beautified, which involved planting flowers and other ornamental plants in specified areas around the hospital (Figure 1).

Figure 1: Beautification area developed by the HHI.



3. Introduction of recycling bins

A recycling project was implemented through a collaboration with a local recycling organisation. A total of four recycling bins were introduced. These were placed on the medical wards and near to the administrative offices (Figure 2). The collected plastics were then placed in these dedicated bins. To ensure maintenance of the project, ward housekeeping staff were asked to discard any plastics in the dedicated bins. Approximately eight bags of plastic waste and two bags of paper waste were collected each month.

Staff members informally reported that they have started recycling plastics in their own homes, now utilizing the hospital recycling bins for disposal. Additionally, other departments in the hospital have expressed interest in participating in the recycling project and overall in the initiative.

Figure 2: Recycling bins for plastics and paper outside administrative offices.



4. Implementation of a kitchen garden

A kitchen garden was established with the aim of providing fresh seasonings and vegetables to the hospital kitchen staff (Figures 3 and 4). The team utilised seed boxes and bricks to plant a variety of vegetables and local seasonings. The stems from the seasonings were re-used to grow more seasonings, thus ensuring recycling of these plants. The plants were harvested on a weekly basis, with the exception of ochro, which was harvested twice per week.

The kitchen staff provided positive informal verbal feedback, stating that the kitchen garden and seed boxes provided direct contribution to the healthy self-grown food. As a result of this initiative, one staff member

developed a hydroponics system at his home, whilst kitchen staff reported a greater understanding of the benefits of recycling seasoning stems and have incorporated this practice into their own home kitchen gardens.

Figure 3: Seed bed with lettuce, tomatoes, eggplant.



Figure 4: Pictures showing ochro on the trees and harvested.



5. Exercise sessions

An exercise programme was introduced, targeting staff members (Figure 5). This activity occurred once a week on the hospital grounds. An athletic trainer led the exercise sessions which lasted from 20 to 60 minutes. The average number of participants ranged from four to eight persons per session and this has been consistent over the last two years. One staff participant expressed that the exercise session improved her quality of life and sense of well-being. She felt more energetic and more satisfied after a day's work.

Figure 5: Staff participating in the exercise sessions.



6. PAHO Smart Hospital training

Two team members participated in a Smart Hospital training programme offered through a collaboration with the Ministry of Health, Ministry of Planning and Development and Pan American Health Organisation (PAHO). The four-day training programme included representatives from all major hospitals in Trinidad and Tobago. The sessions highlighted how to use the PAHO Smart Hospital checklist and scoring system to assess the structural, non-structural and "green" or environmentally friendly features of a healthcare facility. The checklist enabled the assessment of the ability of the facility to withstand natural disasters of various kinds and the structures in place for such an event.⁷

7. Fundraising event

The team had its first successful fundraising event, a Grand Soup Sale in collaboration with Friends of the Hospital, a non-governmental organisation which runs the cafeteria on the hospital's compound. Some of the

seasonings from the kitchen garden were used in the food preparation. The money acquired will be used to fund further projects.

8. Partnerships and collaborations

EarthMedic/EarthNurse Foundation for Planetary Health

The HHI participated in a Climate Change and Health in Small Island Developing States, Focus on the Caribbean Virtual Conference. Subsequently, the HHI team formed a partnership with the EarthMedic/Nurse Foundation for Planetary Health, an NGO with headquarters in Trinidad and Tobago whose focus is to educate health professionals about climate change and health. The aim of the partnership was to support the hospital in developing a climate smart hospital.

Faculty of Engineering, University of the West Indies, St. Augustine Campus

Staff and students from the engineering department of the University of the West Indies, St. Augustine (UWI) collaborated with the hospital to propose research projects. These included utilising renewable energy to produce distilled water and feasibility of renewable energy to power the hospital. The final projects relevant to the HHI were:

- i) A sustainable approach to water supply at a hospital.
- ii) Feasibility of electrical versus a renewable energy source to power the Sangre Grande Hospital.

DISCUSSION

This report provides a description of the Healthy Hospital Initiative at one of the main hospitals in Trinidad and Tobago. The main goals of the initiative were to encourage those within the hospital system to make better choices concerning recycling, promoting a green environment, and lifestyle modification. This strategy was meant to achieve quick but impactful results to build momentum and support further development of the initiative.

Similar initiatives were established in other settings. The Children's Hospital Colorado (CHC) also implemented a Healthy Hospital Initiative which used a structured approach focused on five components: nutrition, physical activity, employee wellness, sustainability and emotional, mental and spiritual resiliency while the Cleveland Clinic offered wellness programmes in physical activity, healthy eating, stress management, and tobacco cessation, all contributing to the overall wellness of their employees.^{8,9} A core feature across all of these initiatives, including the Sangre Grande Hospital HHI, was sustainability, which

has the specific impact of mitigating the effects of climate change and improving planetary health.

However, several challenges were encountered with the implementation of the initiative programme. The hospital infrastructure created challenges with identifying suitable locations to use as green spaces and for kitchen gardens. For example, one area had a fire hydrant and electrical wires which made the area unsuitable to function as a green space.

Although the initiative was primarily employee driven, active participation from staff to initiate and maintain projects was limited. This made it difficult to create ownership of the initiative by the hospital and to secure sufficient financial and human resources to invest in projects. As a result, the implemented activities were self-funded by members of the HHI team which created further challenges for continuity and maintenance of the projects. Project maintenance relied mainly on the voluntary efforts of team members, which was not always possible due to other work commitments.

RECOMMENDATIONS

We suggest the following for the overall improvement and effective execution of achieving healthy hospitals.

Education on healthcare resilience, climate change and environmentally sustainable health facilities.

We suggest collaborative efforts between health facilities and local health professional associations and climate change NGOs to establish monthly webinars to educate health professionals on the impacts and relevance of climate change to health and health systems.¹⁰

Health education promotional posters.

Posters can be a useful method to educate staff and patients.¹¹ For example, a poster demonstrating the sugar content of specific drinks or the amount of sodium in a variety of foods can enlighten the staff, patients and visitors. These can be strategically placed in the cafeteria and waiting areas. The Healthy Caribbean Coalition produced a climate change related publication, "Climate Change, NCDs and SIDs" that discussed the impact of climate change on small island developing states due to difficulty to adapt. It discussed the relationship between NCDs and climate change, noting how increasing air pollution worsens the severity of respiratory illnesses and the impact of large-scale climate-related disasters on poverty.^{12,13}

Encourage staff involvement through the use of incentives.

Some hospitals have opted to offer incentives to employees who commit to healthy lifestyles which have proven to be effective. For example, the Children's Hospital in Colorado promoted healthy lifestyles and offered incentives, such as publishing success stories of persons who made progress.⁸ The Cleveland Clinic launched a wellness programme and offered employees a financial reward paid in dividends since August 2008. This resulted in weight loss amongst employees from August 2008 to 2014, amounting to approximately 300,000 pounds. This incentive led to an increase by 33% in employee engagement.⁹ In the local setting, offering financial rewards to each individual may not be feasible. An alternative could be to encourage healthy competition amongst health professionals with the reward of certificates or prizes.

Offering healthier food options.

Health facilities should support healthier food options for both patients and staff by removing sugar-sweetened food or drinks in the hospital cafeteria and providing nutritionally dense local food. This is similar to policies implemented in schools in several Caribbean islands.¹⁴

Quality improvement projects and research.

Assessment and analysis of existing knowledge, attitudes, and practices amongst staff and patients should inform and guide future educational campaigns, promote volunteer recruitment and act as a catalyst for cultural realignment.

Funding and temporary seasonal or permanent human resources should be allocated to achieving the objectives of the HHI.

In obtaining this, the importance must be recognized by the necessary stakeholders. Therefore, the research and education aspect of the importance for these healthier and more environmentally friendly practices are crucial. To overcome this obstacle, external stakeholders can be encouraged to support financially, via human resources, or assist in educating the stakeholders.

NEXT STEPS AND CONCLUSION

The HHI should be transformed into an official committee within the regional health authority with the development of a terms of reference and financial plan. Next steps include conducting research to assess the impact of the initiative with regards to creating a climate conscious

hospital environment. Healthcare staff working in community health facilities will be included in the initiative and will promote similar projects in those workplaces. Plans to develop a more sustainable kitchen garden include developing a hydroponics system. The PAHO SMART hospital toolkit will be utilised to perform a green assessment, in addition to structural and non-structural safety, preparedness for a disaster or an emergency along with the environmentally friendly implementations at the hospital.

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