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Green Management Initiatives in Healthcare Sector An Empirical Study on Private Hospitals in Tirunelveli

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ABSTRACT

Green Management initiatives in the Healthcare Sector are a subject which is acquiring more and more consideration by healthcare professionals, public authorities and donor agencies. The healthcare sector and especially hospitals account for a massive, but often neglected or even ignored impact on the environment and face high costs for use of energy, water and disposal of material In a recent paper (Healthy Hospitals Healthy Planet Healthy People. Addressing climate change in health care settings WHO 2008), the World Health Organization (WHO) stated: "We know that climate change has the capacity to produce severe consequences for human health. We also know that the health sector can play a pivotal role in helping nations across the globe adapt to these serious consequences.

1. INTRODUCTION

This statement demonstrates the importanceand the international willingness to adopt Green Management initiatives in the Healthcare Sector. It is of high importance to notice that actions and measures towards "greener"hospitals must not be understood as restrictive practices or as a barrier to quality of service and comfort of patients but on the contrary as an enriching and challenging vision for leading hospitals. In fact, the implementation of best environmental practices goes hand in hand with the improvement of safety, quality, cost savings and improvement of staff and patient's health protection.

2. RESEARCH DESIGN AND METHODOLOGY

This study made use of questionnaires that were collected from doctors and higher official with similar designations in hospitals in Tirunelveli. The questionnaire was designed to allow for both qualitative and quantitative data analyses and assessed the status and strategies for green initiatives in hospitals.

Purposive sampling was used in this study. The rationale for choosing this approach was that the researcher was seeking knowledge about the green management initiatives in private healthcare sectors.

In this study only hospitals that were eligible were purposively chosen to participate in this study. Out of 153 hospitals (total population) the researcher has chosen 83 hospitals as sample size for her study.

3. OBJECTIVES OF THE STUDY

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1. To study the importance of implementation of the green initiatives in the study units
2. To study the green initiatives that are practiced in the study units

4. STATEMET OF THE PROBLEM

Today, leading- edge healthcare organizations are striving to create environments that are more conductive to healing, while also working to eliminate barriers to patient safety and environmental risks. The motivation to institute green initiatives in healthcare facilities comes in different forms for every organization. The goal is to ensure that inpatient and outpatient settings have a positive, rather than a negative impact on patient's health. Green initiative means operating our business in such a way that it causes minimal harm to all living creatures, it means operating our business in such a manner that it does not deplete our environment, but rather enriches it. It reinforces our working together for a common good. Sustainability means operating our business so as to grow and earn profit while recognizing and supporting the economic and non-economic aspirations of all people both inside and outside the organization for which we depend. The only way to succeed in today's interdependent world is to embrace sustainability.

5. ANALYSIS AND INTREPRETATION OF DATA

IMPORTANCE OF THE IMPLEMENTATION OF GREEN MANAGEMENT INITIATIVES IN THE STUDY UNITS

Healthcare may not be the first industry that is thought of in the push to go green, however, the green trend's presence appears to be increasing and it is clear why. In this study the following table highlights the importance of implementing Green Management Initiatives in the hospitals and Garrett Mean Score is being used to rank the importance

IMPORTANCE OF THE IMPLEMENTATION OF GREEN INITIATIVES

S.NO	RATED STATEMENT	GARRETT MEAN SCORE	RANK
1	To gain a competitive advantage over other hospitals	43.8	X
2	To improve patient care and quality of care of patients	57.2	I
3	To be morally and ethically correct	54.7	II
4	To meet the expectations of the public	49	V
5	Global environmental concern	49.6	IV
6	To reduce operating costs	45.3	VII
7	Legal compliance to environmental regulations	51.9	III
8	To meet demands from staff retention	46.2	VI
9	To obtain subsidies and/ or other incentives	44.5	IX

Source: Primary Data

TABLE NO 1

The Garrett Mean Score Analysis for these importance's of the implementation of the green management initiatives show that, to improve patient care and quality of care of patients Rank I , which is followed by to be morally and ethically correct Rank II. Legal compliance to environmental regulations is ranked III and Global environmental concern is ranked IV. The V rank scored for the importance of implementation of the green management initiatives is to meet

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the expectations of the public and to meet demands from staff retention is ranked VI, which is followed by to reduce operating costs is ranked VII. To obtain subsidies and/ or other incentives is considered to be the VIII importance and to gain a competitive advantage over other hospitals is considered to be the least important of all these implementation of green management initiatives in the study units.

The researcher identified various strategies with regard to various aspects of Greenmanagement initiativesthrough review of literature and a pilot study. These strategies are categorized into Energy Consumption/Resource Conservation, Waste Management, Food Management, Water Management, Transportation Management,Green Campus and Infrastructure Management Initiatives.

GREEN MANAGEMENT INITIATIVES

S.NO	INITIATIVES	PERCENTAGE OF RESPONDENTS
1	Energy Consumption/Resource Conservation Initiatives	**21**
2	Waste Management Initiatives	**25**
3	Food Management Initiatives	**16**
4	Water Management Initiatives	**17**
5	Transportation Management Initiatives	**11**
6	Green Campus and Infrastructure Management Initiatives	**10**

Source: Primary Data

TABLE NO 2

The level of adoption of the various strategies under each area was assessed through cumulative mean score analysis on the basis of the ratings in three point scale with the score of,3,2,1 respectively to the responses 'Currently in practice', ' In plan/ progress', ' Not in progress'.

Thus the strategies gaining more importance within each area are identified on the basis of their mean scores. Averaging this mean score of the strategies within each area, the average mean scores were calculated and ranked accordingly. This rank reveals the most important area in which perspectives are adopted in the Greenmanagement initiatives in the study area. All these aspects of this analysis are discussed below.

Average mean score calculated as discussed above on each of strategies of green management initiatives among the study unit reveals that various initiatives of Waste Management ranks first which is followed by the Energy Consumption/Resource Conservation . Transportation Management Initiatives and Green Campus and Infrastructure Management Initiatives gain least importance in Green Management Initiative in Private Healthcare Sector according the average measure analysis.

ENERGY CONSUMPTION/ RESOURCE CONSERVATION INITIATIVES

S. NO	INITIATIVES	CUMULATIVE MEAN SCORE	RANK
1	Encourage local power production through co-generation, solar and wind power.	4.76	VI
2	Generate renewable energy on-site (e.g., PVs, CHP)	4.5	X

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3	Option to use both mechanical and natural ventilation	4.94	I
4	Use of photo-voltaic panels to generate electricity	4.70	VII
5	Implement a program for energy savings	4.85	IV
6	Purchase off-site renewable energy sources (wind, hydropower, solar, bio-fuel).	4.68	VIII
7	In collaboration with IT, install software to reduce energy use from computers and monitors	4.79	V
8	Natural lighting (i.e., daylight)	4.90	II
9	Replacing incandescent (bulbs) with fluorescent lamps	4.67	IX
10	Multiple circuits to turn lights on and off	4.88	III

Source: Primary Data

TABLE NO 3

The table 3 reveals that Option to use mechanical and natural ventilation, Natural lighting (i.e., daylight), multiple circuits to turn lights on and off, implement a program for energy savings are felt as the most important initiatives, whereas purchase off-site renewable energy sources (wind, hydropower, solar, bio-fuel), replacing incandescent (bulbs) with fluorescent lamps, generate renewable energy on-site are felt as least important in the initiatives of Energy Consumption/Resource Conservation in the study units.

FOOD MANAGEMENT INITIATIVES

S. NO	INITIATIVES	CUMULATIVE MEAN SCORE	RANK
1	Using fresh products with little or no preservatives and food-coloring and with as little packaging as possible	4.75	VII
2	Encouraging locally sourced, environmentally friendly products with minimal packaging.	4.78	VI
3	Procuring food from local producers and adjusting menus seasonally	4.89	II
4	Eliminating bottled water	4.90	I
5	Using reusable dishware and utensils in cafeteria.	4.84	V
6	Switching to reusable or bio-based food containers	4.86	III
7	Buying food that are certified organic or sustainable	4.81	IV

Source: Primary Data

TABLE NO 4

The table 4 reveals that eliminating bottled water, procuring food from local producers and adjusting menus seasonally, switching to reusable or bio-based food containers are considered as the most important initiatives, whereas encouraging locally sourced, environmentally friendly products with minimal packaging, using fresh products with little or no preservatives and food-coloring and with as little packaging as possible are felt as the least important initiatives of Food management in the study units

WASTE MANAGEMENT INITIATIVES

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S.NO	INITIATIVES	CUMULATIVE MEAN SCORE	RANK
1	Ensuring correct segregation of clinical (infectious) and general waste.	4.75	IV
2	Buying environmentally friendly products	4.89	III
3	Encouraging and supporting plastic recycling programs	4.93	I
4	Composting appropriate waste rather than depositing as landfill.	4.86	V
5	Avoiding waste by modifying a process/procedure (for example, emphasize electronic rather than paper record-keeping systems)	4.81	VI
6	Developing programs to reduce waste amounts (examine the benefits of reusable versus disposable items).	4.76	VII
7	Identifying toxic substances, including lab chemicals and reducing the amount used	4.90	II
8	Evaluating waste and waste sources regularly and looking for opportunities to sell waste	4.87	VIII

Source: Primary Data

TABLE NO 5

The table 5 reveals that Waste Management Initiatives Encouraging and supporting plastic recycling programs, identifying toxic substances, including lab chemicals and reducing the amount used, buying environmentally friendly products are considered as the most important initiatives, whereas developing programs to reduce waste amounts, evaluating waste and waste sources regularly and looking for opportunities to sell waste are considered as the least important initiatives of Waste management in the study unit

WATER MANAGEMENT INITIATIVES

S.NO	INITIATIVES	CUMULATIVE MEAN SCORE	RANK
1	Annual audits of water consumption cost for all hospitals and the implementation of water saving plans	4.80	V
2	Promoting collection of rainwater (roof and ground) and uncontaminated renal dialysis water to be used as grey water.	4.83	IV
3	Mandating low flow showerheads	4.79	VI
4	Electronically controlled valves that open only when a person washes his/her hands, and close as soon as the hands are withdrawn	4.98	I
5	Cisterns to collect rainwater for irrigation	4.95	II
6	Utilizing low-flow fixtures for toilets, faucets and urinals in appropriate areas.	4.89	III

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TABLE NO 6

The table 6 reveals that electronically controlled valves that open only when a person washes his/her hands, and close as soon as the hands are withdrawn, cisterns to collect rainwater for irrigation, utilizing low-flow fixtures for toilets and faucets and urinals in appropriate areas are considered as the most important initiatives whereas annual audits of water consumption cost for all hospitals and the implementation of water saving plans, promoting collection of rainwater (roof and ground) and uncontaminated renal dialysis water to be used as grey water are considered as the least important initiatives of Water management in the study units.

TRANSPORTATION MANAGEMENT INITIATIVES

S. NO	INITIATIVES	CUMULATIVE MEAN SCORE	RANK
1	Providing incentives to employees for using alternative modes of transportation.	**4.74**	**VII**
2	Providing and maintain a transport service to commuter transit and subway stations.	**4.82**	**IV**
3	Operating high fuel efficient or hybrid vehicles	**4.92**	**I**
4	Providing eco-driver training	**4.81**	**V**
5	Improving public transport and bicycle routes to existing hospitals.	**4.90**	**II**
6	Monitoring and develop plans to reduce the CO2 emissions from hospital fleet vehicles	**4.87**	**III**
7	Routinely reviewing the need for patients and visitors to travel.	**4.77**	**VI**

Source: Primary Data

TABLE NO 7

The table 7 reveals that operating high fuel efficient or hybrid vehicles, improving public transport and bicycle routes to existing hospitals, monitoring and develop plans to reduce the CO2 emissions from hospital fleet vehicles are considered as the most important initiatives, whereas routinely reviewing the need for patients and visitors to travel and providing incentives to employees for using alternative modes of transportation are considered as the least important initiatives of transportation management in the study units

GREEN CAMPUS AND INFRASTRUCTURE MANAGEMENT INITIATIVES

S. No	Initiatives	Cumulative Mean Score	Rank
1	Providing adequate ventilation to dissipate the pollutants and get them out of the building	**4.96**	**I**
2	PVC-free products, e.g., flooring, wall covering, carpet backing, ceiling tile, plumbing pipe, roof membrane	**4.91**	**II**
3	No/low VOC products, e.g., paints, adhesives, stains, finishes, floor coverings	**4.84**	**IV**
4	Acoustical ceiling tiles that do not support growth of fungi and bacteria	**4.81**	**V**

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5	Materials and products manufactured without ozone depleting compounds	**4.90**	**III**
6	Highest available recycled content steel and concrete to fulfill performance requirements	**4.79**	**VI**

Source: Primary Data

TABLE NO 8

The table 8 reveals that providing adequate ventilation to dissipate the pollutants and get them out of the building, PVC-free products, e.g., flooring, wall covering, carpet backing, ceiling tile, plumbing pipe, roof membrane and Materials and products manufactured without ozone depleting compounds are felt as the most important initiatives, whereas acoustical ceiling tiles that do not support growth of fungi and bacteria and highest available recycled content steel and concrete to fulfill performance requirements are considered as the least important initiatives of Green Campus and Infrastructure Management Initiatives

4. FINDINGS

In the importance of implementation of green initiatives in the study units to improve patient care and quality of care of patients rank first, it is followed by to be morally and ethically correct and to gain a competitive advantage over other hospitals is considered as the least importance in implementing green initiatives in the private healthcare

- Energy Consumption/Resource Conservation, waste Management, food management, water management, transportation management, green campus and infrastructure management are identified as various initiatives adopted in various private hospitals. Among them waste management initiatives rank first and it is followed by energy consumption and resource conservation.
- Among the various energy consumption/ resource conservation initiatives option to use both mechanical and natural ventilation have the high scoring and it is followed by natural lighting whereas generate renewable energy on-site have the least scoring.
- In food management initiatives eliminating bottled water is found to be the most important initiative and using fresh products with little or no preservatives and food-coloring and with as little packaging as possible is found to be the least important initiative
- In the case of waste management initiatives, encouraging and supporting plastic recycling program, identifying toxic substances, including lab chemicals and reducing the amount used are found to be the most important initiatives
- Among various water management initiatives, electronically controlled valves that open only when a person washes his/her hands, and close as soon as the hands are withdrawn, Cisterns to collect rainwater for irrigation are considered as the most important initiatives whereas mandating low flow showerheads is considered as least important initiative
- In the case of transportation management initiatives, operating high fuel efficient or hybrid vehicles is considered as the most important initiative and it is followed by improving public transport and bicycle routes to nearby hospitals.
- Among various green campus and infrastructure initiatives, providing adequate ventilation to dissipate the pollutants and get them out of the building is considered as the most important initiative and it is followed by PVC-free products, e.g., flooring, wall covering, carpet backing, ceiling tile, plumbing pipe, roof membrane.

5. SUGGESTIONS

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FOR WASTE MANAGEMENT

- Develop programs to reduce waste amounts (examine the benefits of reusable versus disposable items).
- Place co-mingled (non-infective) recycling receptacles in all hospital areas.
- Ensure correct segregation of clinical (infectious) and general waste.

FOR WATER MANAGEMENT

- Annually auditing the water consumption of hospitals and implement water saving plans.
- Promote collection of rainwater (roof and ground) and uncontaminated renal dialysis water to be used as grey water.
- Ensure cleaning and sterilisation processes are using best practice water conservation methods.
- Efficient use of water should be integrated into all buildings at the design stage

FOR TRANSPORTATION MANAGEMENT

- Routinely review the need for staff, patients and visitors to travel.
- Monitor and develop plans to reduce the CO2 emissions from hospital fleet vehicles.
- Build all new hospitals close to public transport.

FOR ENERGY/ RESOURCE CONSERVATION

- Encourage local power production through co-generation, solar and wind power.
- Insulate and adjust ambient thermostats closer to predicted external temperatures. Instigate lighting upgrades, sensors and timers where possible

FOR FOOD MANAGEMENT

- Source food that is fresh and locally produced to minimise the energy required for freezing / thawing / reheating and transport.

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