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# THE IMPLEMENTATION OF ENVIRONMENTAL AND SOCIAL POLICIES IN GREEK HEALTH UNITS AND EVALUATION THROUGH THE GLOBAL REPORTING INITIATIVE'S (GRI) REPORT

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## ABSTRACT

In recent years, there has been a growing trend towards the implementation of CSR both in Europe and worldwide. This fact has created the need and necessity, from the part of hospitals, to adopt social and environmental policies.

The purpose of this article is to reflect the current state of environmental and social performance in the concept of CSR, correspondent GRI guideline report, and to reveal if CSR is implemented in a Greek hospital facility. Furthermore, we demonstrate how a hospital may implement environmental, social and sustainability policies and we suggest specific actions, under which a health facility, if they implement them, will be more environmentally and socially responsible to its stakeholders.

Finally, we propose an environmental and social instrument and in particular the globally recognized standard GRI, according to it, a hospital will be able to measure the environmental, social responsibility and sustainable development, aiming to provide the necessary information to its shareholders and stakeholders.

Keywords: CSR evaluation, Environmental and social performance, Environmental stakeholders, Green health care system, GRI report, sustainable development.

## 1. INTRODUCTION

Today the whole complex of the economy in the society leads the public policy applicable to environmental management to has direct and indirect effects on the operation of hospitals without reducing effectively the environmental degradation caused by them.

The World Health Organization for Europe determines the rate of the HMW produced by Health Units between 570 and 1,140g/bed/day (*WHO., 2005*). The study of Liberti and his associates in Italy recognizes that infectious medical waste are not managed as hazardous waste (*Liberti, et. al. 1994*). Other research in the UK in a sample of 7,000 beds revealed problems in the handling and transportation of waste, with a 5% of them, do not have any specific warning labels on the boxes of transport, while 75% are being so damaged that it has remained the least possible identification marking (*Blenkharn., 2006*). Most disappointing are the results of investigations in other less developed countries such as Croatia (*Marinkovic, et. al., 2007*), India, (*Rao, et. al., 2003. Patil and Pokher., 2005*), Brazil (*Da Silva, et. al., 2004*), in South Africa (*Nemathaga, et. al., 2007*), Korea (*Cheng, et. al., 2009*) and in China (Jang, et al., 2006).

In Greece, according to the data from the National Hazardous Waste Management Planning in 2007, the estimated production of HMW from Health Units are 14,600 tonnes annually for a number of 57,000 beds across the country with average production of HMW 702g/bed/day. The investigation of the Unified Association of Municipalities and Communities of Attica -UAMCA- in 2008<sup>1</sup> describes the situation of the

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<sup>1</sup> According to UAMCA the following private health units of the prefectures of Athens and Piraeus have the highest probable HMW diverted to "unknown direction":  
Mitera 95.71%, Holy Trinity Hospital Eugenides 93.14%, Lito 93.43% , Attiko Hospital 95.28%, General Clinic of Kallithea 86.57%, Central Clinic of Athens 98.00%, Evrotherapeia Athenaenon SA 90.71%, Children's Euroclinic 83.00%, Athens General Clinic 79.14%, Athens Medical Center (Clinical Reristeriou) 78.71%, Kypseli's Hospital 93.14%, Clinic Galen 70%, St. Irene 99.14%, Clinic of St. Irene (Egaleo) 88.43%, Tzerani El. SA Mental Structure 100%, Karras Clinic 92.57%, Presentation of Christ 100%, Private Maternity Nike 97.28%, Atticon Haidari

HMW in the wider region of Athens. According to this survey :

- ✓ A vital part of the large Health Units in Attica send HMW that they generate to incinerator, delivering quantities significantly below the actual production of the HMW. The survey showed that the loss of the HMW produced in the Health Units in the region of Attica and are not delivered to the incineration are about 3,000 tons annually.
- ✓ A large number of private clinics avoid doing proper separation of their HMW and as a result, only small quantities of hazardous medical waste are being sent to the incinerator and the rest end up in raw landfill.
- ✓ From the significant quantities that are not delivered for incineration, a part of the HMW are led to treatment inside the Health Units (Evangelismos, Laiko, Onasio, the Athens' Polyclinic) without fulfilling the necessary requirements of JMD I.P.37591/2031/2003. Also, these health units have no recognized environmental conditions for the management of infectious waste.
- ✓ It must be noticed that particularly today, four years after the implementation of legislation for the management of medical waste, there are clinics that have not implemented any management system of waste they produce.
- ✓ Only a small percentage of bacterial and diagnostic laboratories send their hazardous medical waste that they produce in the incinerator.

We need not to take these setbacks in the implementation of environmental legislation in the management of medical waste as a significant loss in the struggle to integrate environmental and sustainable management in health care. If we want to change the existing reality, we must redraw the policies aimed at integrating environmental policies and sustainable management of the health system. Aderson said that policy is “*what is actually done as against what is proposed or intended*” (Aderson., 1984). Porter (*Green competition advance*) who made the 'Win-Win theory' supports that properly designed environmental legal provisions, appropriate economic instruments, the environmental management systems and the change of social and market conduct concerning the environment will ultimately encourage innovation, increase inputs' productivity, reduce overall operating costs, enhance value and provide a competitive advantage to the company that operates in a competitive environment (Porter and Claas van der Linde., 1995).

## 2. IMPLEMENTATION OF CSR IN A GREEK HOSPITAL

It has proven of great importance the overall change of the global philosophy in which hospitals operate, act and move forward. All policies, functions and operations which a health facility operates, should be environmentally responsible so that, apart from providing health and medical services, the hospital will be able to defend and protect the environment. This can be succeeded through a series of acts of Corporate Social Responsibility.

There are many extensive theoretical and regulatory theories about what should CSR means (Carroll, 1999 Idowu and Filho, 2009). By far the most widespread and accepted approach is Carroll's definition of CSR, which represents the levels of a company's social responsibility in the form of a CSR pyramid (Carroll, 1991)



Fig. 1. CSR pyramid according to Carroll.  
Source: Carroll 1991, p. 4

This is the complete version of CSR, which allows to observe, apart from economic, the legal, ethical and philanthropical levels. The European Commission also ties into Carroll's view by defining the social responsibility of companies as follows: CSR is a “concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis”<sup>2</sup>

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66.71%, Mary Hodighitria 92.71%, Piraeus Hospital 96%, George Pagou 81.14%, Bioclinic Piraeus, Private Clinic SA 74.14%, Zilakou Ch. Metaxopoulos - Zilakou P, 88.28%, Kanakidi George 99.43%, St Mary Clinic of Nikaia 99.43%, Sweet Jesus General Clinical of Salamis 98.71%, Hippocrates 86.71% Standard Hospital Center - Clinical Care Agios Nikolaos 68.14%.

<sup>2</sup> Green Paper Promoting a European Framework for Corporate Social Responsibility, 2001, COM (2001) 366 final.

But for what reasons should also a hospital implement CSR actions to all its functions? “*Corporate social responsibility is to increase its profits*” claims the famous economist, Friedman (1962). This is not a general truth as in recent years the purpose of business is not just to increase profits but to show that their social and environmental responsibility and sensitivity. This is explained by the fact that many companies have moved their actions beyond the bounds of charity, in a broader perspective on the role of the company based in society to ensure the reputation, the social image, innovation, etc. “*Do good in order to do well*” are the words of Seifert (2003). Basically the gist of these words reflects all the benefits of the implementation of CSR within a company. To be more specific, if a company implements CSR, it will do good not only to society and to the environment, but also, it has many advantages for itself. In particular there will be given some advantages in the implementation of CSR in a company:

- ✓ Increase of production and productivity of the firm (*Idowu and Towler, 2004*)
- ✓ Enhancement of corporate reputation and the "good" image of business to society and to stakeholders (*Cooper, 2003; Roberts and Dowling, 2002; European Multistakeholder Forum on CSR, 2003; Eisenegger, 2005*)
- ✓ Increase or even maximize profits (*Baron, 2001; McWilliams and Siegel, 2000, 2001; Bagnoli and Watts, 2003; Beltratti, 2005*)
- ✓ It will increase profits because of the relation between CSR and financial performance (*Margolis and Walsh, 2001; Smith, 2001; Orlitzky 2001, 2003*)
- ✓ It can reduce operational costs (*Quazi and O'Brien, 2000*).
- ✓ It leads to the attraction and retaining qualified staff (*European Multistakeholder Forum on CSR, 2003; Dam and Scholtens, 2007 Campbell, 2007*).
- ✓ Increase consumer loyalty to a company (*Bagnoli and Watts, 2003; Idowu and Towler, 2004*).
- ✓ Creates new business opportunities through value-added products or services and magnifies the interest of consumers (consumer moral) and investors (socially responsible investor) (*De la Cruz and Suarez, 2005; Auger et al, 2003*)
- ✓ It helps to minimize damage and loss in case of a crisis (which may be due to a disaster or in a moral breach of company) because of good reputation enjoyed by the company and because of social and environmental investments (*Grojean et al, 2004; Hancock, 2005*).
- ✓ It has the ability to charge more for goods in their production due to the voluntary adoption of CSR (*Dam and Scholtens, 2007*).
- ✓ It helps to conserve natural resources for future development of business (*European Multistakeholder Forum on CSR, 2003*).

Moreover, the main question which arises is how can a health unit be more environmentally and socially responsible. If a hospital wants to integrate CSR into all its functions and be socially responsible to all stakeholders, it could adopt the following steps:

- ✓ Identification of purpose and vision of the hospital
- ✓ Define a manager for CSR
- ✓ Setting priorities
- ✓ Identifying stakeholders
- ✓ Defining a responsible operational program
- ✓ Establish management systems
- ✓ Create internal audit units

Furthermore, if a hospital adopts the previous steps, it could also extend its actions and try to optimize the protection of the environment and society, through the following actions (Table1):

**Table 1: Implementation of CRS into a Hospital**

Environment	Employees	Suppliers	Consumers of Health Services	Local Communities
<ul style="list-style-type: none"> <li>✓ Monitoring water consumption.</li> <li>✓ Reduction of hospital waste.</li> <li>✓ Formal commitment from the part of the hospital for sustainable development (ie development that meets the needs of the present without compromising the ability of future generations to meet their own needs).</li> <li>✓ Reducing emissions of polluting gases through sterilization and combustion of hospital waste.</li> <li>✓ Control programs that use energy, water, raw materials and emissions into the environment in the area of the nursing unit.</li> <li>✓ Environmental investments.</li> <li>✓ Reduce negative impacts and transfer best practices across the hierarchy and all the facilities and the key suppliers and customers of the hospital.</li> <li>✓ Environmental management systems, with the objectives and procedures for evaluating the progress of the hospital.</li> <li>✓ Commitment to the use of recycled and recyclable materials for every use, and in every area and department of the hospital.</li> <li>✓ Reducing energy consumption (such as electricity).</li> <li>✓ Offsetting carbon emissions through combustion of waste with an equivalent reduction, for example through tree-planting.</li> <li>✓ Reducing resource consumption.</li> <li>✓ Installation of solar panels to collect solar energy.</li> <li>✓ Reduce liquid fuels (for example, for heating the hospital rooms).</li> <li>✓ Monitoring the energy consumption of hospital buildings.</li> <li>✓ Support charitable events to protect the environment.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Existence of policies that ensure the health and safety of workers.</li> <li>✓ Maximize employee participation in corporate governance and improve their working environment.</li> <li>✓ Equal treatment for workers with part-time employment (eg contracts) as far as the salaries, promotion and training is concerned.</li> <li>✓ Lifelong learning for all employees within the hospital.</li> <li>✓ Offering training opportunities and maximize opportunities to promote from within the organization. The training extends to the management of privacy in planning for post-retirement life etc.</li> <li>✓ Delegating authority to employees.</li> <li>✓ Responsible recruitment practices, particularly with the principle of non-discrimination will probably be easier to recruit people from ethnic minorities, older workers, women, long-term unemployed and disadvantaged people.</li> <li>✓ More diverse of the workforce.</li> <li>✓ Better information for workers on the hospital.</li> <li>✓ Developing communication policies to balance work and family life as flexitime, childcare during working hours, etc.</li> <li>✓ Equal payment and career prospects for women.</li> <li>✓ Improve ergonomics in the workplace.</li> <li>✓ Partly allocation of the profits to the employees.</li> <li>✓ Active supervision and management of employees absent from work because of disability or injury which would result in cost reduction.</li> <li>✓ Education for the prevention of working risks and accidents.</li> <li>✓ Existence of policies against bullying</li> </ul>	<ul style="list-style-type: none"> <li>✓ Monitoring of employment practices of business partners, suppliers and distributors and encouragement in keeping up with the company policies (recommended an ethics code suppliers).</li> <li>✓ Support of organizations that promote the idea of fair trade and compliance with human rights.</li> <li>✓ Knowing the place and circumstances of the produced products, and if during the production exist issues concerning human rights.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Reduction of the waiting time for the scheduled appointments.</li> <li>✓ Give queue priority for elderly people, people with special needs and other vulnerable groups.</li> <li>✓ Reduction of the bureaucracy during the entry and exit of the hospital unit.</li> <li>✓ The products and services should be produced in an effective, ethical and environmental friendly way.</li> <li>✓ Correct pricing of health services consumed by patients.</li> <li>✓ Consultation and discussion with customers.</li> <li>✓ Adopt "commercial activities" for social purposes (cause related marketing).</li> <li>✓ Ethical marketing and advertising and enforcement of consumer rights.</li> <li>✓ Easy access to a hospital unit for people with disabilities.</li> <li>✓ Anti-corruption in the Health System.</li> <li>✓ Face the provoked demand in the Health System.</li> <li>✓ Avoid any discriminations as far as providing health services is concerned.</li> <li>✓ Take up actions to explain to customers-consumers, how they should act in the context of sustainable development.</li> <li>✓ Production, marketing and promotion of products and services should be in an efficient, ethical and</li> </ul>	<ul style="list-style-type: none"> <li>✓ Establish a mechanism to maximize and promote two-way communication and cooperation of the hospital with local communities.</li> <li>✓ Implementation of joint marketing campaigns with organizations for social purposes.</li> <li>✓ Funding of local sporting and cultural events or donations to charitable activities.</li> <li>✓ Elimination of corruption at the hospitals.</li> <li>✓ Contribute to improving quality of life through actions related to education, health and care.</li> <li>✓ Existence of social programs that encourage voluntary workers to help the community.</li> <li>✓ Funding entertainment events (theater, etc.).</li> <li>✓ Active participation of employees in local volunteer programs.</li> <li>✓ Purchase products from local suppliers.</li> <li>✓ Economic development through creation of new working positions.</li> <li>✓ The local communities should be kept informed of business operations and any impact of current and future activities in it, should be taken into account in decision making.</li> <li>✓ Ensure the compatibility of the activity of the hospital with other economic activities.</li> <li>✓ Promoting sustainable and balanced development of local communities.</li> <li>✓ Use of procurement and investment in improving local economy and social development.</li> <li>✓ Provide financial, technical or other support to local organizations and initiatives of high public acceptance</li> </ul>

**Table 1: Implementation of CRS into a Hospital**

Environment	Employees	Suppliers	Consumers of Health Services	Local Communities
<ul style="list-style-type: none"> <li>✓ Rational use and management of natural raw materials.</li> <li>✓ Compliance with environmental legislation.</li> <li>✓ Reduce paper usage and introduction of recycled paper and special recycling bins in each section of the hospital, which will help promote recycling.</li> <li>✓ Sustainable constructions in the area of the hospital.</li> <li>✓ Bioclimatic design of hospital buildings.</li> <li>✓ Adopt a new type of sterilization and incineration of all hospital waste through the sterilization process with new technologies aim to reduce polluting gases.</li> <li>✓ Replace old-style refrigerators, which consume much energy and use chlorofluorocarbons with new and technological advanced refrigerators .</li> <li>✓ Economic driving of ambulancea that will help the reduction of fuel consumption, hence reducing emissions of polluting gases.</li> </ul>	<p>and oppression and other fees you pay for similar occupations.</p> <ul style="list-style-type: none"> <li>✓ Creation of pleasant working environment, where there will be open and honest internal communication between management and workers.</li> <li>✓ Existence of policies that include measurable objectives for the promotion of equal opportunities and empowerment of staff, who reviewed regularly according to performance.</li> <li>✓ Provide health screening programs and to encourage practices that create a healthy working environment. For example, policies against smoking, support those people who use alcohol or other addictive substances etc.</li> <li>✓ Actions that reward according to work performance (rewarding performance).</li> <li>✓ Existence of policies against discrimination in hiring, wages, training or dismissal of any employee based on gender, race, age, ethnicity, physical disability, sexual orientation and religion.</li> <li>✓ Safe working conditions for all workers in all sections of the hospital.</li> <li>✓ Recruitment of socially excluded people.</li> <li>✓ Safe working practices and continuous training of workers in food hygiene and safety.</li> <li>✓ Information systems for employees.</li> <li>✓ Actions that contribute to growth and development of the skills and talents of employees (talent development).</li> <li>✓ Improve the performance of innovation.</li> <li>✓ Investments related to development of workforce skills.</li> <li>✓ Establishment of child care and care for employees.</li> </ul>		<p>environmental friendly way.</p> <ul style="list-style-type: none"> <li>✓ Ensure access to supervisory information related to products and services, production and making them available to customers, patients, etc.</li> <li>✓ Meeting the expectations, the needs and the desires of customers for the promotion of safe products and services that will have top quality, will be reliable and are not going to contain hazardous substances.</li> </ul>	<p>and interest, and local infrastructure.</p> <ul style="list-style-type: none"> <li>✓ Establish a comprehensive occupational health program that includes at least regular checkups.</li> <li>✓ Development of initiatives and activities that promote the local community and contribute to sustainable development.</li> <li>✓ Support local populations through educational, cultural and other activities.</li> <li>✓ Provide volunteer work in local organizations.</li> <li>✓ Payment of taxes in the state and not tax avoidance.</li> <li>✓ Support the work of scientific organizations and institutes of health.</li> <li>✓ Focus on at least one important issue for the community and use its economic and political clout of the hospital to resolve them.</li> <li>✓ Educating the public on the efficient management and offering targeted programs and health care.</li> <li>✓ Support the vulnerable groups.</li> <li>✓ Reward (money) for the children of workers who passed the entrance exams for higher education.</li> <li>✓ Free foreign language learning.</li> <li>✓ Expenditure for camps for children of employees.</li> <li>✓ Free graduate studies.</li> <li>✓ Organise and financing celebrations (for example Christmas, Easter etc).</li> <li>✓ Addressing the community as a major interested party.</li> </ul>

What is worth to be mentioned is that a hospital do not only has to implement actions that will support and promote its environmental and responsible behavior, but it should publish all its actions so that they become known to all stakeholders. The measurement and evaluation of CSR can be done in various ways which are presented below.

### 3. EVALUATION OF THE ENVIRONMENTAL IMPACT OF THE GRI MODEL IN A GREEK HOSPITAL

Sustainability reports based on the GRI framework can be used to benchmark organizational performance with respect to laws, norms, codes, performance standards and voluntary initiatives; demonstrate organizational commitment to sustainable development; and compare organizational performance over time. GRI promotes and develops this standardized approach to reporting to stimulate demand for sustainability information – which will benefit reporting organizations and those who use report information alike.<sup>3</sup>

The next question that arises is how can a Greek hospital measure and evaluate CSR through GRI?

First of all, there must be mentioned that the environmental performance indicators of GRI, are divided in 9 different aspects that concern: materials, energy, water, biodiversity, emissions-effluents-waste, products and services, compliance, transport and the overall aspect.

To begin, in the first environmental aspect that concerns "*materials*", the hospital should gather information about:

- ✓ materials used by weight or volume and
- ✓ the percentage of materials used that are recycled input materials.

To continue, the next environmental aspect concerns "*energy*". In this aspect, the hospital should gather information about :

- ✓ the direct energy consumption by primary energy source (coal, natural gas and fuel distilled from crude oil, including gasoline, diesel, liquefied petroleum gas (LPG), compressed natural gas (CNG), liquefied natural gas (LNG), butane, propane, ethane, etc.) and
- ✓ the indirect energy consumption by primary source (electricity, heating and cooling, steam, nuclear energy and other forms of imported energy such as solar, wind, geothermal, hydro energy, biomass based intermediate energy and hydrogen based intermediate energy).

For example, the Metropolitan Hospital of Athens, consumed 21,400Kwh electricity during 2006-2008 and 730Nm<sup>3</sup> of gas during the same years.

In the environmental aspect water, the hospital should mention:

- ✓ The total water withdrawal by source.
- ✓ The water sources significantly affected by withdrawal of water, and
- ✓ The percentage and total volume of water recycled and reused.

Moreover, in the environmental aspect "*biodiversity*", the hospital should gather and present information that concern:

- ✓ The location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high bio-diversity value outside protected areas.
- ✓ The description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.
- ✓ The habitats protected or restored, and
- ✓ The strategies, current actions, and future plans for managing impacts on biodiversity.

In addition, in the environmental aspect "*emissions-effluents-waste*", the hospital should collect information about:

- ✓ The total direct and indirect green-house gas emissions by weight.
- ✓ Other relevant indirect green-house gas emissions by weight.
- ✓ The initiatives to reduce greenhouse gas emissions and reductions achieved.
- ✓ The emissions of ozone-depleting substances by weight.
- ✓ NOx, SOx, and other significant air emissions by type and weight.
- ✓ The total water discharge by quality and destination.
- ✓ The total weight of waste by type and disposal method, and
- ✓ The total number and volume of significant spills.

For example, the Metropolitan Hospital of Athens, during the period 2006-2008, produced 1,700 kg/day

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<sup>3</sup> For further information, please visit : <http://www.globalreporting.org>

solid waste of urban character and 8500 l/day of water waste. Also, it produced 110kg/day solid waste purely infectious and 660 l/day of water waste. Furthermore, it produced 4kg/day both toxic and infectious waste and 20 l/day of water waste. Finally, it produced 0.1k/day purely toxic waste (Sepetis et Kada, 2009).

To continue, in the environmental aspect “*products and services*”, the hospital should measure the initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.

As far as the environmental aspect “*compliance*” is concerned, the hospital should measure and present the monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.

Also, in the environmental aspect “*transport*”, the hospital should mention the significant environmental impacts of transporting products and other goods and materials used for the organization’s operations, and transporting members of the workforce.

Finally, in the environmental aspect “*overall*”, the hospital should mention the total environmental protection expenditures and investments by type.

If the hospital finds and records the above information, it will be able to construct and to publish an environmentally sustainable report, that will be a presentation of the environmental performance of the hospital to the stakeholders.

#### **4. CONCLUSION**

In the recent years, there has been noticed a dramatically increase of the production rate of hospital waste throughout the world and especially in Greece. This problem was also exacerbated with the combination of other serious problems that hospitals face such as the mistaken distribution and management of material goods inside the hospital, the inefficient administration of the health system, the lack of staff in hospitals, the lack of specialized and properly trained personnel, the deficient funding and the vast deficit in the health system, the lack of a lifelong learning system for the hospital staff, the unsatisfactory providing of the health and medical services and the lack of quality in the health services, the lack of culture from the hospital's staff, the non-organized recycling of all materials within the hospital, the continued emission of gaseous pollutants, the over-consumption of energy (eg. electricity), the loss of water into the hospital, the improper sterilization and incineration of hospital waste and the absent of the introduction of alternative forms of energy to a hospital. Some of these problems can be faced through Corporate Social Responsibility or CSR.

The implementation of CSR in a hospital is necessary because it would address some serious and critical problems affecting society, the workers but mainly to protect and defend the environment. Additionally, the hospital will have a lot of benefits such as the reduced operational costs, the improved image of the hospital, the enhancing of corporate reputation and the good image of the hospital to the society and stakeholders, the increase of the production and productivity, etc. Also, CSR will increase the profits and will result in the attraction and the maintenance of qualified staff. Furthermore, if a hospital applies CSR actions, in order to measure and evaluate the results of its operations, according to our article, it can do so through the standard GRI, which is one of the most recognized global standard and trustful instrument that measures CSR through sustainability reports.

Finally, what is worth to be mentioned is that the suggestions of this article are the creation of a single recording agency of CSR for all Greek hospitals, either public or private. Also, we propose the promotion of the GRI as the most appropriate instrument for the measurement and the evaluation of CSR in a hospital and a methodology for publishing sustainability reports especially for the health sector, which will be occurred in a future research of ours.

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