

**Environmental Stewardship: Hospital Waste Reduction  
Dalin Tzu Chi Hospital, Tzu Chi Medical Foundation (Taiwan)**

**GGHH Agenda Goals**

- Leadership
- Waste

**Hospital Goal**

- To reduce amount of generated waste through recycling and conscientious utilization of resources
- To motivate employees to participate implemented programs on waste reduction

**Progress Achieved**

- Over the past ten years, the general waste has decreased from 2.92kg to 2.63 kg per bed daily
- The hospital is able to save NT\$ 21.5 million per year through utilizing the e – administration and health care administration system
- The volume of recycled wastes was increased by 163,477 kg from 2005 – 2014.
- In the past fifteen (15) years, the hospital was able to decrease volume of produced waste through using reusable utensils. The hospital has promoted and mandated their employees and patients to use reusable utensils whenever possible. During this time, six million pairs of chopsticks were prevented from reaching the waste stream. The hospital has abided by the government policy of taking back unconsumed medicines. Since September 2010 we have collected 3,501.12 Kg, an average of 49.21 Kg monthly

**The Issue**

In Taiwan, hospitals produce around 90,000 tons of waste and 23,561 tons of biomedical and healthcare waste every year. Processing these generated volumes of waste implies high costs. If the hospitals can work on reducing waste produced, cost of processing them such as treatment will not only be decreased but this will also mitigate the level of pollution released to the environment.

**Sustainability Strategy Implemented**

In health care facilities, the management of medical waste is one of the most important tasks. As part of the sustainability strategy of Dalin Tzu Chi Hospital, green policies were adapted in conjunction with modern technologies, efficient facility and equipment.



Recycling is practiced in each nursing station. There are 9 categories recycling bins: metal, paper, plastic, soft bag, biomedical waste, glass, aluminum, PET bottle and garbage.



One of the improvements Dalin Tzu Chi Hospital is working on is development of an electronic health care information system. This innovation will aid the hospital in becoming paper and film free. The hospital also provides sufficient resources to their employees such as provision of reusable utensils, education and knowledge through training and practical exposure to recycling work.

Simultaneous with all these activities, the hospital develops policies which ensures and links patient safety with protection of environment. Moreover, timely and periodic orientations and forums are conducted. Employees and patients are invited to participate to be further educated about environmental concerns and the initiatives of the hospital.

**Implementation Process**

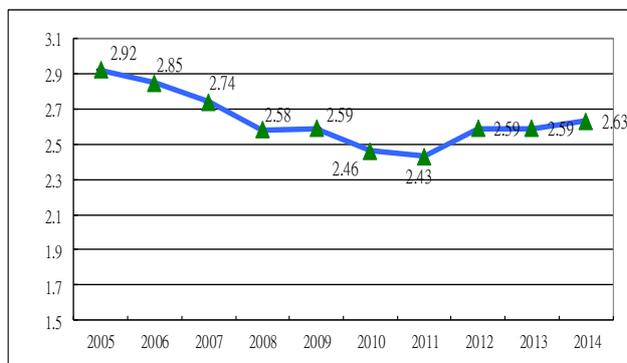
The recycling work is also the important strategy in the hospital. In each nursing station, nine (9) bins are situated for each recycling category. Hospital volunteers, employees and their families share their time with Dalin Tzu Chi Hospital. They gather at the recycling station within the hospital and sort wastes from the hospital and nearby local communities regularly.

Quality Control Circle (QCC) was established. The group is composed of varied stakeholders who become members of different teams. The members of QCC discuss possible solutions to address concerns of the hospital. Through the implemented activities of the QCC program, the amount of generated wastes was effectively reduced from 2.92kg/bed to 2.63kg/bed per day. In the hemodialysis room, the equipment is designed to successfully decrease the artificial kidney fluid from 0.9 kg to 0.8 kg per bed.

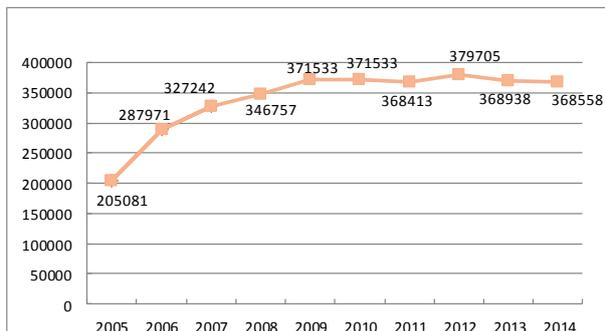
**Tracking Progress**

The Department of General Affairs monitors the weight of wastes. The tables below show the results of monitoring conducted by the Department of General Affairs.

**Table 1.0**  
**Waste per Hospital Bed per Day 2005-2014**  
**2005-2014**



**Table 1.1**  
**The Weight of Recycled Materials**



**Table 1.2**  
**Bio Medical Waste 2012-2014**

	<b>2012</b>	<b>2013</b>	<b>2014</b>
Total biomedical waste	17502 kg/month	17668 kg/month	17767 kg/month
Visitors (person/month)	19968	20162	20658
Waste/bed	0.87kg	0.87kg	0.86kg
In-patient (ward and hemodialysis)	9838 kg/month	9699 kg/month	9703 kg/month

**Challenges and Lessons Learned**

There is an immense opportunity for the hospital to identify safer and better efficient strategy to reduce generated wastes. The hospital’s goal to lessen the volume of wastes produced is potentially achievable. However, this will require systematic and careful transition strategies such as educating employees to institute sustainable changes in habits and form green social norms within the hospital.

**Next Steps**

The hospital develops policies which encourage incorporation of environmental protection in various processes implemented in the hospital it is seen by Dalin Tzu Chi Hospital as a way of also taking care of the safety of each patient and employee.

Dalin Tzu Chi Hospital aims to continue providing this service to all its patients and employee. It is in our vision to continue seeking innovation to manage and reduce hospital waste. Furthermore, the hospital will continue to strictly monitor daily hospital activities where wastes are generated.

The team has worked to refine the regulations on medical waste management and the lobbying focus on ban on incineration to burn municipal, bio-medical, and hazardous waste. At the moment the hospital is filing their fifth appeal to the Ministry of Environmental Protection. Dalin Tzu Chi Hospital is hoping to get approval for non-incinerating a portion (approximately 10%) of their medical waste. The medical waste may be recycled after high-temperature sterilization. They can

be reconstituted into plastic products for industrial uses such as vehicle's lamp holder, socket, pedals and fan blades among others.

#### **Demographic Information**

The first Tzu Chi General Hospital was inaugurated on August 17, 1986. The Hospital practices the respect for life and patient – oriented medical care principles in Eastern Taiwan.

Dalin Tzu Chi General Hospital, a hospital established in a land with an area of 137,800 sq. m, was inaugurated on August 13, 2000. The hospital is serving the people in the area of Yunlin and Chiayi County, a place with disproportionate medical resources. Hospital provides consultative service, in-patient care unit (acute hospital) and hospice home care service. The hospital has 957 beds, 20 operating rooms and 1756 employees. With the present facilities and manpower the hospital is able to serve an average of 78,742 outpatients per month (944,904 annually) with an estimated 17,578 days of stay per month.

#### **Links**

<http://dalin.tzuchi.com.tw/>

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#### **Quotes:**

"If we live a simple lifestyle and reduce our carbon footprint while constantly cherishing the earth, we shall slow down the global warming crisis."

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#### **Keywords / Topics:**

Waste

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