

# CASE STUDY

## Temple St. Children's University Hospital

### Waste Prevention and Diversion of Recyclables 2010-2012

Temple Street Children's University Hospital (CUH) was established in 1872 as a hospital for the poor children of Dublin. Today the hospital is one of the major paediatric hospitals catering for children from all over the country.

CUH initiated a Sustainable Waste Management Programme in 2004 and has been actively implementing waste, water and energy use reduction measures since. The commitment and support of the hospital's executive has been an important factor in the success of the programme and the move to more sustainable waste management.





As a reflection of CUH's continual work on sustainability and environmental issues they won the Green Awards Green Healthcare Award in 2011 and 2012.

The hospital joined the Green Healthcare Programme (GHCP) in 2010. The hospital has actively considered and implemented the recommendations of the GHCP, and is one of the most active participants of the programme.

This case study outlines the improvements made by CUH during their involvement in the Green Healthcare Programme. These improvements are in addition to those made by the hospital before joining the programme. These improvements have not only impacted on the hospital's sustainability but also resulted in significant cost savings for the hospital.



#### OVERALL RESULTS: - Estimated reduction in quantity of waste produced per annum and associated cost savings per annum - comparison between 2010 and 2012 surveys

Healthcare Risk Waste			
	<b>0.23</b> kg per bed day Reduction in waste per in-patient bed day	<b>7</b> tonnes Waste reduction per annum	<b>€5,700</b> Associated cost savings (2012 costs <sup>1</sup> )
Landfill			
	<b>0.4</b> kg per bed day Reduction in waste per in-patient bed day	<b>12</b> tonnes Waste reduction per annum	<b>€1,300</b> Associated cost savings (2012 costs <sup>1</sup> )
Food Waste			
	<b>0.1</b> kg per bed day Reduction in waste per in-patient bed day	<b>11</b> tonnes Waste reduction per annum	<b>€18,500</b> Associated cost savings (2012 costs <sup>1</sup> )
Healthcare Risk Waste Special			
	<b>0.03</b> kg per bed day Increase	<b>0.9</b> tonnes Increase	<b>€1,700</b> Cost increase
Total annual savings achieved through continual review of waste management systems and staff awareness -			<b>€23,800</b>

<sup>1</sup>Excluding VAT

Previous measures implemented by the hospital have resulted in additional savings of €21,000 per annum.





## Healthcare Risk Waste



Waste reduction per annum:

**6 Tonnes -**

Regular risk waste reduction:

**7 Tonnes**

Special waste increase

**1 Tonne**

Estimated cost savings:

**€4,000**

### BENCHMARK:

#### Before

Green Healthcare Programme



2.49 kg of waste per  
in-patient bed day

#### After

Green Healthcare Programme



2.29 kg of waste per  
in-patient bed day

**8% REDUCTION**



As far back as 2008 the hospital identified the potential to reduce the quantity of HCRW generated by the hospital. The hospital identified two reasons why materials were being incorrectly disposed of as HCRW, as follows:

- Certain materials incorrectly automatically classified as HCRW
- Classification of all waste from isolation rooms as HCRW

Through work undertaken by the hospital's microbiologist and infection control team, in consultation with national and WHO guidelines, the HCRW classification policy was reviewed and changed in 2009.

All isolation rooms are now provided with a HCRW bin and landfill waste bin. Only materials contaminated with blood are now classified as HCRW. For patients with gastroenteritis, materials contaminated with faeces are also classified as HCRW. For patients with Category 3 or 4 pathogens, all waste generated by and in the treatment of the patient is treated as HCRW.

The revision to the classification policy resulted in the quantity of HCRW being reduced by 11 tonnes in 2010, resulting in savings of €21,000. These are in addition to the savings identified earlier.

The Green Healthcare Programme's HCRW survey provided an up-to-date picture of what was in the HCRW bags generated in the hospital in 2010. The hospital used the recommendations and photographs provided in the report to implement a new awareness drive among staff of the importance of adhering to the HCRW classification policy.

**Between 2010 and 2012, the quantity of HCRW generated reduced from 2.49 to 2.29 kg per in-patient bed day, an 8% reduction. Based on the 2012 activity this corresponds to a reduction of 6 tonnes per annum and savings of €4,000 per annum excl. VAT.**



**In 2012, a re-survey of the contents of the HCRW bags in one ward observed that the proportion of the bag that was comprised of recyclable non contaminated clean materials reduced from 46% to 9% - a significant reduction!**

## Recycling & Landfill Waste



Waste reduction per annum:

**12 tonnes**

Estimated cost savings:

**€1,300**

### BENCHMARK:

#### Before

Green Healthcare Programme



7.14 kg per  
in-patient bed day

#### After

Green Healthcare Programme



6.74 kg of waste per  
in-patient bed day

**6% REDUCTION**



Before the hospital commenced its Sustainable Waste Management Program in May 2004 the hospital recycled only **11%** of its waste (excluding non-risk waste). A business case was made to the hospital executive to change this and the following steps were implemented:

- A compactor was purchased to store mixed dry recyclables
- A staff member was assigned the responsibility of waste management
- An awareness drive among staff was put in place

The recycling rate increased to **38%** just one month later – a significant improvement. This shows if the facilities are provided staff will use them.

The hospital now recycles almost all materials including cardboard, plastics, paper, composite packaging, metal, glass, etc.

Since joining the GHCP the quantity of landfill waste generated in the hospital has reduced even further. As with the HCRW the hospital used the recommendations provided in the GHCP report to implement a new awareness drive among staff of the importance of segregating the recyclables.

**Between 2010 and 2012, the quantity of landfill reduced from 7.14 to 6.74 kg per in-patient bed day, a 6% reduction. Based on the 2012 activity this corresponds to a reduction of 12 tonnes per annum and savings of €1,300 per annum excl. VAT.**



**In 2012, a re-survey of the contents of the landfill bags in a number of wards observed that the proportion of the landfill bag that was comprised of recyclables reduced by up to 82%!**





## Energy Use

A 'left on' equipment survey was carried out by the GHCP at the weekend, when offices, most labs, and week-day clinics are closed. The findings of this survey revealed that the hospital could reduce its electricity usage by at least 120,000 kWh per annum and annual cost by €9,100 if staff were to turn off equipment at night and weekends.

A significant re-development currently being undertaken at the site involves the installation of two new low pressure hot water boiler plant rooms. It is expected that this will save approximately €150k per annum in energy costs.

During the redevelopment a number of leaks were found onsite. In one area, a substantial leak of hot water to ground was found - a double cost of treating and heating the water.

**The hospital employs the SEAI Energy Map to monitor and manage its energy use.**

**[www.seai.ie/energymap](http://www.seai.ie/energymap)**



## Water

A key component of the hospital's Sustainable Waste Management Programme is the area of water use. The hospital recognised that implementing water reduction measures would not only improve sustainability and reduce costs, but also help to ensure water supply to the hospital. In recent years the hospital has implemented a number of key projects including:

- Major leak detection and repair project
- Retrofit of a number of taps, reducing the flow from up to 25 litres/min to 6 litres/min
- Upgrade of pipe quality and insulation to reduce risk of future leaks or burst pipes
- Ongoing research onto the potential re-use of water generated during the Reverse Osmosis process used in hospital activities e.g. Sterile Services Department

