



# CASE STUDY CUH

## Waste Prevention and Diversion of Recyclables 2010-2012



The Children's University Hospital, Temple Street (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 Program 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 program 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

<b>Healthcare Risk Waste</b>		<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> )
<b>Landfill</b>		<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> )
<b>Food Waste</b>		<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> )
<b>Healthcare Risk Waste Special</b>		<b>0.03</b> kg per bed day Increase	<b>0.9</b> tonnes Increase	<b>€1,700</b> Cost increase
<b>Total annual savings achieved through continual review of waste management systems and staff awareness -</b>				<b>€23,800</b>

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

<sup>1</sup>Excluding VAT





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### Food Waste



Waste reduction per annum:

# 11 Tonnes

Estimated cost savings:

# €4,800 to €18,500\*

#### BENCHMARK:

Pre GHCP: 1.41 kg per in-patient bed day

Post GHCP: 1.03 kg per in-patient bed day (not taking into account the reduction in service) **24% reduction**

\* The provision of canteen services in the hospital has changed since the hospital joined the GHCP. Some of the reduction in the quantity of food waste generated will be as a result of this reduced service. In the main the reductions are associated with the improvements to the provision of food, particularly in the canteen.

### Wards & Medical Areas:

Over ordering of food by the ward kitchens can be an issue in every hospital. The catering department needs to ensure that enough food is provided to feed the patients actually eating, but not so much food that it ends up as unserved food waste. Following the initial food survey the catering department now requests all ward catering staff to record the number of unserved food portions after each meal. This information is then used to determine the **'general number of portions'** of food required for each ward for each meal.

Each day when the ward kitchens send their orders in, they are checked against the **'general number of portions'** required. If more portions are ordered than required the main kitchen reduces the number of portions of food sent to the ward accordingly. Ward kitchens very rarely ring the catering department to ask for more food, indicating enough food is being provided.

The main kitchen tries to ensure that ward kitchen staff only order the food required, through regular training and awareness programmes – including highlighting the cost of food waste to the hospital.



**In one example ward, the waste reduction measures reduced the quantity of food waste generated by 12.5%.**



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### Canteen:

Like many of the facilities that participated in the GHCP, the hospital's canteen was observed to be a significant source of food waste. Both staff and the families of patients use the canteen. The hospital managed to reduce the quantity of food waste generated, particularly unserved food waste, by implementing a number of measures, as outlined below.

#### Unserved food:

- **Timing of the preparation of hot food:**

Previously the canteen prepared hot food right up until the end of lunch service (14:30), to ensure that all options were available to customers. It was believed that any unserved food could be reused at tea - when in reality it wasn't. Now the canteen finishes cooking an hour before the end of service, with customers encouraged to purchase the remaining food and sandwiches. This has significantly reduced the quantity of unserved food waste generated.

- **Reuse of unserved food in vending machines:**

Any suitable unserved food from lunch is plated into disposable containers and placed in a refrigerated vending machine. Microwave ovens are provided in the area to heat up meals. Even though the canteen is closed at tea the parents and staff can still have a hot meal or cold salad, with the added benefit of using up the unserved food.

#### Uneaten plate waste:

- **Training of staff to offer the correct portion size to customers to reduce uneaten plate waste:**

Staff were trained to recognise those customers that may require smaller or larger portion sizes. Instead of automatically adding extra food to the plates staff now ask customers if they would like more.



### Changes that make a difference to families not just patients



Mealtime is an important break for staff, but even more so for the families of patients, as it may be their only chance to recharge their batteries. With this in mind the hospital re-decorated the canteen with brighter colours, improved the seating and reviewed the layout of the vending machines. There was an unexpected benefit from the improvement in the facilities – a visible reduction in uneaten food left over on plates. It seems customers are happy to spend more time in the canteen eating their meal.



#### Liquid Waste

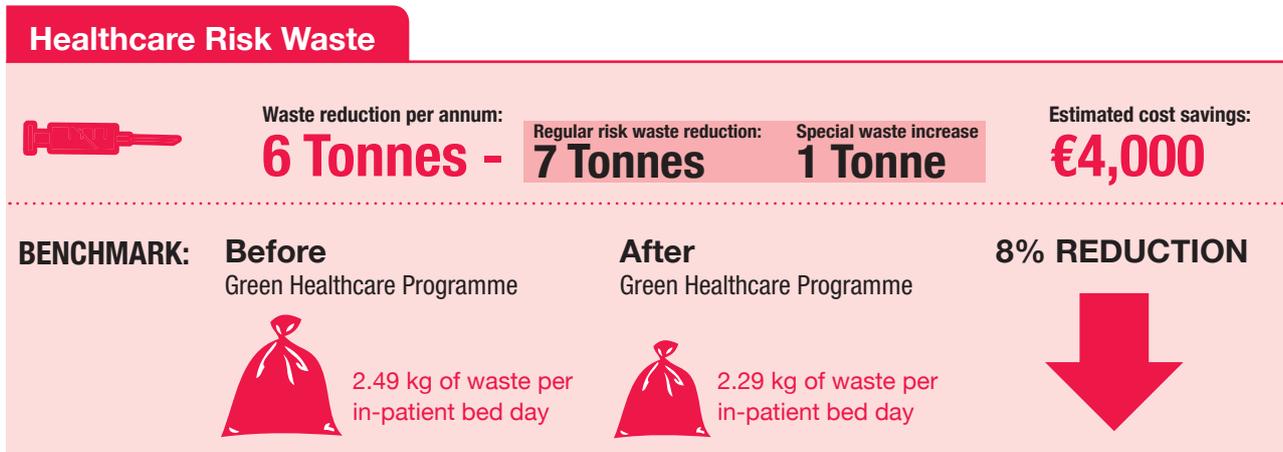
Liquid waste (tea, milk, etc.) was previously placed into the food waste bin due to the positioning of the tray clearing area. The catering staff now place the liquid into a small container which is regularly emptied into the kitchen sink. This change of practice has reduced the number of food waste bins to be managed by porters and to be emptied by the contractor. As bins are charged per lift it has resulted in significant savings.





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Waste Prevention and Diversion of Recyclables 2010-2012



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.

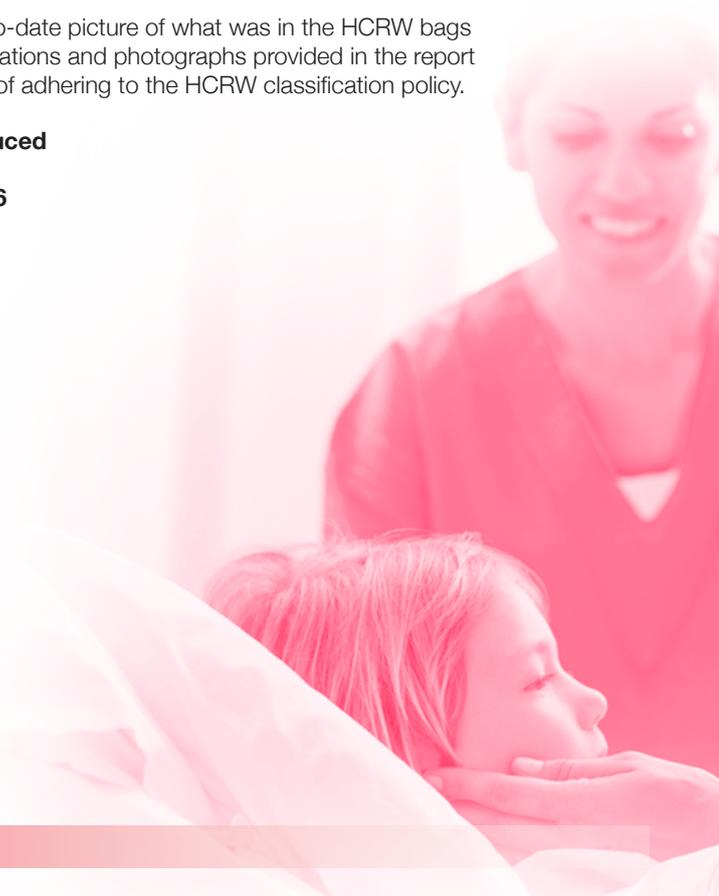
The revision to the classification policy resulted in the quantity of HCRW being reduced by 11 tonnes in 2010, resulting in savings of €21,000. These are in addition to the savings identified on Page 1.

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 education!



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## Recycling & Landfill Waste



Waste reduction per annum:

**12 tonnes**

Estimated cost savings:

**€1,300**

### BENCHMARK:

**Before**  
Green Healthcare Programme



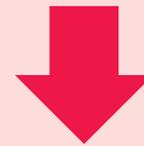
7.14 kg per  
in-patient bed day

**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%!**





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### 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

