



HOW-TO GUIDE

Set up a Waste Prevention and Improvement Programme



This How-To Guide provides guidance on the steps to set up a waste prevention and segregation improvement programme in your healthcare facility. This programme can help reduce waste generation levels and waste management costs. All statistics and costs referenced in this document have been gathered from waste surveys carried out under the Green Healthcare Programme (GHCP).

The Green Healthcare Programme has developed a **Benchmarks & Savings** worksheet to help you analyse your waste generation data and determine possible cost savings. This worksheet should be used in conjunction with this guide, particularly Step 1. Download it from the How-To Guides section of the Green Healthcare Programme website www.greenhealthcareprogramme.ie/resources/how-to-guides





STEP 1: Analyse your waste generation data and determine possible cost savings

Step 1A: Determine the quantity of each type of waste generated in your facility per annum

Record the quantity of general landfill waste, healthcare risk waste, food waste and recyclables generated in your facility for one year. Your facility's waste manager or accounts department can provide you with waste generation and cost data.

Step 1B: Do you generate more or less waste than other facilities?

Dividing your annual waste tonnage by the number of annual bed days, you will generate a waste benchmark for your facility (kg per bed day). Perform this calculation for each type of waste. Compare your benchmarks with the values in Table 1 to see if you produce more or less waste than the average for facilities in the Green Healthcare Programme. If your facility greatly exceeds these values, then you may need to consider why!

Table 1 - Waste generation benchmarks

	Landfill waste	Recycling	Food	Healthcare risk waste	TOTAL			
					NON RISK (landfill + recycling + food)	HEALTHCARE RISK WASTE	TOTAL	
	kg per bed day			kg per bed day				
Acute	4.21	0.88	0.74	1.92	5.83	1.92	7.75	
PCCC (Primary community & continuing care)	2.23	0.48	0.77	0.23	3.48	0.23	3.71	

Step 1C: Estimate the possible quantity of divertable materials in the general landfill waste and healthcare risk waste stream

Table 2 outlines the average proportion of divertable material in the healthcare risk waste (soft bags only) and general landfill waste streams. Divertable means waste that is more appropriately, and often more cheaply, managed in a different stream.

-  Your facility's waste may contain higher or lower levels of divertable materials in the waste, than shown in Table 2. To determine the actual level in your waste you will need to undertake a characterisation or survey of your waste.

Apply the proportions to the annual waste tonnage, to determine an estimate of the quantity of materials that potentially could be diverted from the waste stream.

-  The proportion of divertable material in the healthcare risk waste stream in Table 2, is for soft healthcare risk waste bags only. Ensure you multiply your healthcare risk waste total tonnage by the percentage for soft bags included in Table 2. This is to exclude rigid bins which have not been characterised.



See the **How-To undertake a detailed waste survey guide** for more information

Table 2 - Proportion of divertable material in waste streams

Landfill waste		Healthcare risk waste (soft waste bags only)			
% of waste that is recyclable material		Proportion of waste that is non-risk material		Proportion of waste that is possibly non-risk material	
Acute	PCCC	Acute	PCCC	Acute	PCCC
32%	16%	19%	18.5%	15%	16%
Breakdown between clinical soft bags and rigid bins		Acute		PCCC	
		Soft bags	54%	66%	
		Rigid bins	46%	34%	





Step 1D: Calculate the possible cost savings achievable, by the diversion of materials from the healthcare risk waste and general landfill waste

Determine what your facility is currently paying per tonne for the following:

- Disposal by landfill.....(L)
- Recycling(R)
- Healthcare risk waste (regular)(C)
- Food waste(F)

Calculate the cost difference if the material was diverted and managed in another waste stream, as follows:

- Landfill to recycling.....(L - R)
- Landfill to food waste.....(L - F)
- Healthcare risk waste to landfill(C - L)
- Healthcare risk waste to recycling.....(C - R)

Apply this cost difference to the quantity of material that could possibly be diverted, as calculated in Step 1C.

Where costs are not readily available, use the cost range information in Table 3 as a guideline.

NOTE: The management of materials (landfill or recycling) in a compactor generally incurs a charge per tonne of materials disposed/recycled, monthly rental costs and a charge each time the compactor is lifted and emptied.

Where large volumes of recyclables are diverted from landfill, the use of a recycling compactor instead of wheelie bins may be required. Additional rental and lift charges will apply.

Where a recycling compactor is already in use, the transfer of the extra recyclables from the landfill compactor to the recycling compactor will not result in additional lift charges.

The transfer of non-risk waste from the healthcare risk waste stream will result in some additional lift charges. This will be small relative to the potential savings in the waste not being handled as healthcare risk waste.

Table 3 -Example waste management charges

LANDFILL WASTE		
	Max	Min
Compactor	€148 per tonne	€105 per tonne
MIXED RECYCLING		
	Max	Min
Compactor	€85 per tonne	€0 per tonne
Wheelie bin	€12.50 per lift	€6 per lift
Rebate achieved for compacted mixed dry recyclables	€15 per tonne (One GHCP facility only)	
Rebate achieved for compacted cardboard	€10 - €30 per tonne	
FOOD WASTE		
	Max	Min
Per tonne	€130	€120
Per lift (240 Litre bin)	€12.75	€10
HEALTHCARE RISK WASTE		
Healthcare risk waste	€813 per tonne	
Special healthcare risk waste	€1,849 per tonne	

All prices excluding VAT, 2012

Example Calculation



A facility that could potentially divert 67 tonnes of mixed recyclables from the general landfill waste stream.



Using the prices per tonne outlined in Table 3, a cost difference of €105 applies (landfill €105 - €0 recycling).



This leads to potential savings of €7,000 per annum (€105 * 67 = €7,035).



STEP 2: Look specifically at food waste generated in your facility

Food waste surveys undertaken in the GHCP observed food waste to be an area with significant potential for waste prevention. There will always be a certain amount of food waste which has no value and is relatively unavoidable, for example chicken bones, onion skins, etc. However, much of the food waste produced does have a value and should be focused upon for reduction. The surveys found that just over 70% of all food waste is valuable food waste.

A conservative estimate is that on average, the cost to purchase food is just over €2 per kilogramme or €2,000 per tonne. So food waste with value, costs a minimum of €2,000 per tonne. Reducing the quantity of food waste generated in your facility represents a real opportunity to make significant savings.

See the guidance documents and food waste section on the GHCP website for guidance on how to prevent the generation of valuable food waste.



STEP 3: Outline the possible cost savings to management

Outlining the possible cost savings to management may assist in obtaining their commitment to the programme, including the provision of funding for equipment to help your programme (e.g. bins, signage, etc.)



STEP 4: Set up a green team

The team should ideally have a representative from infection control, waste management & portering, nursing & medical staff and catering. Try to include staff from the largest waste generating areas (typically theatre, wards & catering).



STEP 5: Review your facility's current waste segregation policies

With regard to the hospital's current general waste and healthcare risk waste segregation policies, ask the following questions:

- Are they clear and understandable?
- Is it clear to staff what materials should be placed in the mixed recycling bins?
- Is it clear what materials should only be treated as healthcare risk waste (HCRW) i.e. materials contaminated with blood or bodily fluids. Is all waste generated in isolation rooms for patients with contact spread conditions automatically treated as HCRW?
- Have the policies been communicated to all staff including new staff and students - will they require training?

Based on the answers to these questions the policies may need to be reviewed. This will ensure that your facility maximises the quantity of recyclables segregated and minimise the quantity of material incorrectly disposed of as healthcare risk waste.





STEP 6: Make waste segregation easy

Making waste segregation easier will help to prevent the mismanagement of waste, and save money. Some measures include:

Only provide the correct type of bin in each area If healthcare risk waste (HCRW) is not generated in an area, then don't provide a HCRW bin in that area. This stops the misplacement of landfill waste and recyclables in the healthcare risk waste bin.

Put the waste bin in the correct location

For example, healthcare risk waste bins should not be placed next to a hand wash sink; to prevent the misplacement of tissue paper in the bin.

Clear signage

All instructional signage should be simple, and use pictures or symbols rather than words. People recognise pictures quicker than words, helping staff to quickly recognise if the material is accepted in the bag.

Where possible look at the measures in each area of the hospital. For more info see the guides below on Guidance section of the Green Healthcare website

BEST PRACTICE: Waste bin provision and placement



HOW-TO: Undertake a waste bin placement survey guide



STEP 7: Engage staff

Staff may initially be apprehensive about any changes in waste management. Listen to staff concerns and queries and, where applicable, take these into account.

In particular engage with staff who are heavily involved in waste management and who will be key to successfully implementing any changes (e.g. porters, nursing staff in theatres, etc.).

Facilities involved in the Green Healthcare Programme case studies commented that once the system was up and running, staff become actively involved, often suggesting further improvements.



STEP 8: Implement improvements in a trial area

Trialling any changes in a small number of areas will help you to iron out any issues or problems staff may experience.

Consider choosing a department where a member of the green team works, as they are likely to act as a champion and help to implement changes.

Following the trial, survey staff to determine any improvements you can make, when implementing the changes in other hospital areas.



STEP 9: Measure improvements

Where possible, measure the quantity of each type of waste generated before and after the improvement measures have been implemented. This will help you to determine the quantity of waste diverted from the healthcare risk waste and general waste stream, and the associated cost savings.

Identified actual savings will help to give your programme momentum and commitment from staff and management.



STEP 10: Communicate results

Showing the results of the programme to staff can encourage them to continue implementing improvements. Outlining improvements in terms that staff can readily identify (e.g. cost savings, staff hours saved), will help them to understand how the improvements benefit them.

Regular updates on staff newsletters or staff notice boards are a perfect way of communicating information to staff.

Remember to also communicate the results to management to help you get continuing commitment and funding for bins, signage, etc.

Ensure your waste collection system represents the best value for your facility!

Waste contractors charge each time your waste compactor is collected, so ensure it is only collected when full. If you use wheelie bins you are most likely charged per lift of the bin. Ensure the bins are only collected when full. Wheelie bin compactors that compress the waste in the bin (so more can fit in for the same cost) are available.

If you use a number of wheelie bins that are collected frequently, it may be more economical to use a waste compactor. Look at the difference in waste disposal cost (€ per tonne), but also consider the extra compactor rental and lift costs when determining if it will save your facility money.



Competition between wards has been observed to be a real motivator among staff. In the initial stages of the programme, consider putting a competition or award scheme for the wards in place, to encourage staff involvement.

