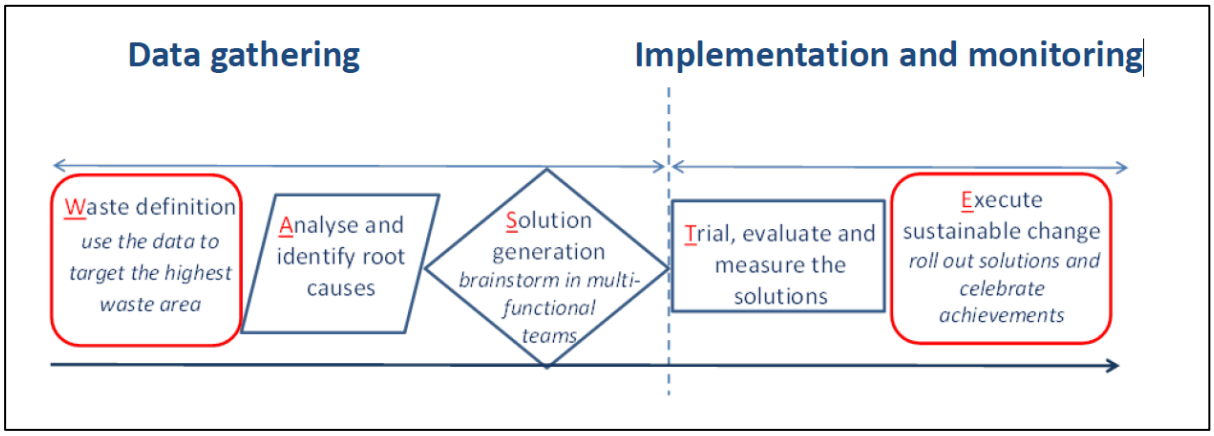
Information sheet

Healthcare: Five steps to reduce food waste

A step-wise approach will help reduce healthcare food waste in the most effective way. These are:

Opportunities to reduce food waste can be found at ward level, in an on-site kitchen and hospital restaurant. WRAP's problem-solving discipline called W.A.S.T.E provides five steps to systematically identify and deliver improvements in hospital catering, to reduce kitchen, unserved and plate waste and save money. This Information Sheet provides advice in implementing each of these steps

WA.S.T.E. – WRAP's problem solving discipline



Step 1: Waste definition – measuring and costing waste

How much waste is there?

Often catering professionals know wastage is occurring, but may not have measured it or appreciate its full environmental and financial impact. Measuring waste helps to prioritise waste reduction activities, by focusing on those that have the most reduction potential, and also provides a useful baseline when monitoring the impact of any rolled out activities. When collecting data it is useful to 'map out' waste according to:

- ***Where*** in the hospital waste is produced e.g. kitchen, on the wards, dining room;
- ***Categories*** of waste e.g.
    - ***Kitchen waste -*** preparation, production spoilage;
    - ***Unserved meals –*** over-ordered/regenerated patient meals, serving-counter waste;
    - ***Plate waste*** - food served to patients and diners but uneaten
- ***Amount*** of waste for each category e.g. weight of waste produced, number of bins, number of unserved meals;

Figure 1: Unserved food at an NHS hospital in Wales

You can start initially with 'high level' data (e.g. number of filled bins) to get an overview, and then increase the accuracy of your data by weighing waste and collecting other useful data alongside. This will increase your ability to home in on the specific reasons for why waste is produced and to put a more accurate figure on the cost of waste.

For example:

- Monitor waste for a defined period of time, place waste into separate bins/containers for each category (e.g. spoilage, unserved meals, plate waste etc) and weigh the waste;
- Record food waste by meal period (breakfast/lunch/evening meal);
- Identify which preparation bay in the kitchen is producing the waste (e.g. main dishes, sandwiches, desserts);
- Identify waste by dish type or food group (e.g. starter, main, pudding; protein/carbohydrate, vegetables);
- Identify which wards are producing the most waste.

What data and how you collect it will be influenced by the catering model used in the hospital. The HCA/WRAP Screencast 2 provides more information on how to measure food waste and contains links to food waste recording templates http://www.wrap.org.uk/sites/files/wrap/WRAP%20HCA%20screencast%202.pdf.

WRAP also has an online tool to help you convert volume data into weight data http://www.wrap.org.uk/content/online-resource-efficiency-tools

Hospitals should also adhere to national guidance on reporting unserved meals i.e. Estates and Facilities Performance Management System (EFPMS) in Wales, Estates and Facilities Information Collection (ERIC) in England.

Collecting and analysing data on unserved patient meals

Unserved patient meals often represent the highest overall proportion of food waste in a hospital. This is as a result of over-ordering meals and supplying too much food to a ward. When collecting data on the number of unserved meals or weight of waste, it is also useful to have the accompanying meal ordering/serving information. This will assist in analysing the data and in the identification of the root causes for waste. The patient bed plan should provide you with some of this information. Useful additional data to collect by ward could include:

- The number of meals ordered;
- Number of meal portions provided (i.e. could be more than the order number if a bulk/cook-freeze service);
- Number of patients actually served;
- Any changes in patient requirements/numbers on a ward compared with the original order e.g. nil by mouth, discharges, having a procedure; and
- Detail of unserved portions by dish type.

Attachment A provides an example waste recording template for recording ward waste and ordering data.

The true cost of your waste

The true cost of food waste to a hospital is not simply how much you pay for disposal of the food, but all the additional costs of meal/ingredient purchasing, utility costs in preparing meals and staffing costs to prepare and serve food. Waste costs can be calculated using hospital-specific data or using WRAP's research-based estimate of £1,900 per tonne (Healthcare: Taking Action on Waste).

A hospital's own costs would include:

1. Food ingredients
2. Staffing
3. Waste disposal

1. Food Ingredients

You can estimate the cost of wasted ingredients in the following ways:

- Calculate the cost of unserved meals using the percentage wasted/not served as a proportion of total spend on ingredients or cook-chill/freeze meals (e.g. if 10% of

your meals are unserved then approximately 10% of ingredients/meals are thrown away);

- If using a cook freeze/chill system where meals are bought in, calculate the cost to purchase each dish and apply this to the number of portions unserved;

2. Staffing

The catering budget will include staff costs to deliver the service. Outside of this may be other staff, such as housekeepers or hostesses that serve food to patients. You can calculate the cost of 'wasted time' for every unserved meal.

3. Waste Disposal

Find out what the charging structure is for waste collection and calculate how much it is costing to dispose of food waste. If you have a separate food collection already (i.e. food is not mixed with other waste) then this cost should be readily available from the waste contractor/facilities manager. If not, you may need to calculate this as a proportion of total collection for the hospital, based on the number of bins you have collected per week and recent invoices for waste services. For more guidance see the WRAP Waste Review Guide.

If you dispose of food waste to sewer, you will need to estimate annual running and maintenance costs, and any annualised capital expenditure within catering/facilities management budgets.

Figure 3: Macerator unit, used to dispose of food waste to sewer

If you do not have access to hospital-specific information then you can use WRAP cost estimates contained in the WRAP report on "*The true cost of food waste within hospitality and food service*"

WRAP Estimates:

1. Each tonne of food waste costs an average of £1,900 per tonne
2. Which is 22p for every meal served

Data Analysis

Once you have collected your data, you will need to analyse it in order to identify where to start focusing your waste reduction efforts. Typically, you should focus efforts where the most waste is produced since this is likely where you will make the biggest financial savings. It is useful to group all of the data together and to scale it up. The following example illustrates how you might analyse data from two wards.

Worked example:
This hospital provides a plated meal service to patients. There are 20 wards and unserved lunch meal data was collected from 2 wards, as presented below.

	Ward 1 Surgical assessment		Ward 2 Minor surgery	
	Ordered meals	Unserved meals	Ordered meals	Unserved meals
Monday	30	2	30	1
Tuesday	30	2	28	4
Wednesday	30	10	28	2
Thursday	30	6	26	2
Friday	30	6	28	10
Saturday	30	10	25	1
Sunday	30	10	25	1
Total unserved	N/A	46	N/A	17

This data indicates that the hospital should focus on:

- Reducing waste levels on the Surgical Assessment ward;
- Establishing why there is more waste on certain days for both wards.

Step 2: Identifying the root causes of waste

In order to tackle waste it is essential to understand the root causes for waste generation, to identify the factors that contribute to it and the associated problem/issues that exist in service delivery. It is often helpful to approach this step according to elements of the catering service and where in the hospital the waste arises (e.g. kitchen, ward). It is then possible to drill down into the specific factors rather than making generic observations such as 'poor communication between catering and nursing staff'.

The data you collected in Step 1 will help you to prioritise which elements to look at. These could include:

- Meal/menu planning
- Meal ordering practices
- Food preparation
- Production planning
- Food packaging/storage
- Procurement/supply chain
- Meal portioning
- Meal servicing practices
- Ward level stock provision/control

For example if the highest wastage rates are found at the ward level then this may mean that the root causes are in meal ordering practices or meal servicing practices. Managers should share the waste data with other staff and explain they will be looking for ways in which improvements can be made to reduce waste. At this stage it is important not to point the finger of blame - you are gathering information in order to help make improvements and want to make sure that all staff are engaged in the process. Root causes for waste can be identified through:

- Observing actual practice and staff behaviours, to see where the waste is coming from and comparing this with procedures/practices that should be adhered to (e.g. ordering of 'just in case' meals, not checking stock levels before re-stocking);
- Involving team members and asking them questions about how they go about their job, where they think there is wastage and why;
- Although the management and cost of waste usually lies with the catering department, it is important to involve nursing and dietitian teams in order to understand why waste is happening and communicate the value in making changes that will reduce wastage. Collective working between catering, nursing and dietetic teams often provides the best results, through shared understanding and implementation of change.

The checklists contained in this toolkit identify a number of root causes for waste. These can be used to help determine if these causes are applicable to your hospitals.

Step 3: Solution and action generation

In Step 3 your aim is to identify solutions to the root causes of waste generation in your hospital that have been identified and to take action to make changes that reduce waste. You may find that a number of solutions are identified during Step 2 which you can explore in further detail with staff. In Step 3 you should:

- Discuss with staff their ideas and solutions for reducing waste (see the training resources provided in this Toolkit);
- Agree which solutions should be the ones to prioritise – these could be a combination of 'quick wins' (i.e. easy to implement) and ones that are more difficult but have the potential to achieve the most reduction in waste and greatest savings;
- Identify which solutions are compatible or support other plans within the hospital e.g. changes to the menu;
- Determine if the solutions require a financial and/or staffing investment, and confirm that this would be available;
- Identify the key stakeholders/staff that would need to be involved in delivering the solutions;
- Set yourself a measureable target for the level of waste reduction you hope to achieve. For example, this could be a percentage reduction in the number of unserved meals or a reduction in the amount of preparation waste;

The checklists contained in this toolkit identify actions to address root causes for waste. These can be used to help determine if they are applicable or achievable at your hospital(s).

Develop an Action Plan

Once you have agreed the solutions, an Action Plan can be developed which sets out:

- The actions that will be taken and who is responsible for leading on this;
- The timescale for delivering the action;
- How you are going to measure the impact of the actions on waste reduction.

Develop a supporting Training Plan

At this stage, you should also identify any training and communication needs to support achieving the actions identified. A training plan should include:

- Identification of those requiring training;
- Who will deliver the training, how and when; and
- What the key messages are.

Step 4: Trialling and evaluating solutions

Some of the actions you agree to implement may be relatively easy and carry little risk of failure. These can be implemented without the need for a trial period. For those that require a large change in procedure or the involvement of many stakeholders (for example, a change in meal ordering procedure), it is often best to trial these changes before they are fully rolled out. The benefits of conducting a trial include:

- It is easier to communicate changes face-to-face to a smaller number of stakeholders;
- The impact can be measured and monitored;
- Any errors or difficulties in delivering changes can be identified and the solution modified;

Before conducting a trial you will need to identify:

- Which stakeholders you need to include (e.g. suppliers, ward hostesses, supervisors, chefs, nursing staff, dietitians);
- What key messages you need to communicate to them and how best to do this; and
- The data you will collect and record throughout the trial.

During the trial, it may be necessary to make small changes to your planning approach. At the end of the trial, there should be a method of reporting its impact, and the criteria used to decide whether to roll out the change further across the hospital.

Step 5: Roll out solutions

If your trials have been successful in reducing waste, you can now consider rolling them out to the rest of the hospital. Before you do this, you should recognise the efforts of those involved in the trial, share the results with them and secure their feedback. Their experiences will help 'fine tune' the solution, so that any changes to the solution can be made and the roll out is as smooth as possible.

The results of the trial should be shared with other stakeholders (e.g. supervisors, facilities management), to communicate the achievements and benefits of waste reduction and let them know your proposals for rolling out changes in the service. This is an opportunity to secure their views, to allay any fears they may have and to establish how best to conduct and communicate the roll out. Although you can present the amount of waste reduction in kilogrammes or tonnes, it can have more impact if presented in a more meaningful way, for example:

- Number of avoided wasted meals;
- Cost savings;
- How this saving relates to the cost of hospital procedures;
- Any benefits to patients or diners.

Routes of communication to stakeholders could include:

- A topic within a team meeting;
- In a short written statement that could be included in a Newsletter, Press Release or for a Notice Board;
- To a wider hospital forum, such as Sustainability or Facilities Management Group.

Continual Improvement

You should aim to continually reduce waste and save money. You can use team meeting and suggestion boxes to collect ideas on how improve the way the caterings service is delivered. You will also need to review wastage data to make sure it is not increasing and to monitor the impact on changes to the service.