Health Care Without Harm

Reducing hospital malnutrition with a circular economy approach

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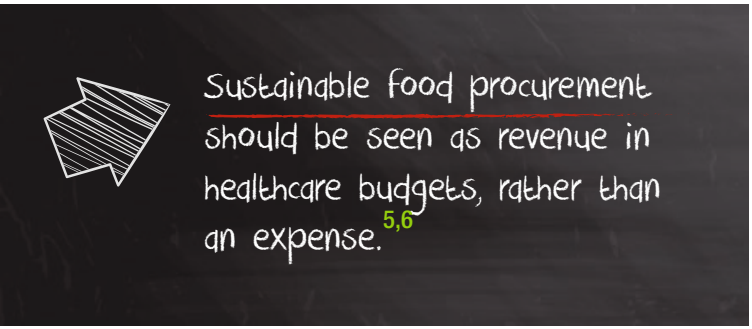
Hospital menus are not well conceived - a high percentage of food served is wasted (6%-65%),[1] nutritional requirements are often not met and, as a result, patients may lose weight while in hospital. Healthcare facilities must recognise food's value for the health and wellbeing of patients during treatment, and improve the environmental and economic performance of their food service. There are two key elements vital for the development of a healthy and sustainable food policy in the healthcare sector: **food procurement** and **food waste**.

Why is public procurement of food important in healthcare?

Public procurement, (i.e. public authorities and institutions purchasing goods, services, works, and utilities) has social and environmental impacts. Considering that public procurement accounts for 19% of Europe's GDP (more than €2.3 trillion annually),[2] procurement should be considered as a way of reducing these impacts. Choosing more sustainable goods and services, produced in more ethical and equitable systems, benefits the purchasing institution and society as a whole.

Public sector institutions (including health facilities) should not only take responsibility for improving the sustainability of their own supply chains, but also in the development of new, more sustainable and innovative products and services, including food and catering services.[3] With their huge purchasing power, public institutions have the power to drive the market.



Some hospitals are already aligning their public procurement strategies with sustainable food policies to provide more appetising and nutritious meals, whilst reducing food waste, protecting the environment, and saving money.[4] A double win can be achieved for hospitals and health systems – improving public health and reducing costs.

Why is reducing food waste important in healthcare?

Approximately 100 million tonnes of food is wasted annually in the EU across all stages of the food chain, and 14% of this food waste is attributed to food services alone.[7] Global food waste carries an estimated cost of approximately €630 billion,[8] but food waste not only has a significant economic impact - it also impacts on society and the environment, contributing to land and soil degradation, water pollution, and resource depletion.[9]

Food waste also has a high carbon footprint when disposed of in landfills: methane and carbon dioxide - two potent greenhouse gases - are produced as part of the natural decomposition processes, and food production itself has a large carbon footprint. In healthcare facilities, food waste rates are high because of poor food quality, unappetising meals, inefficient ordering and delivery systems, and inadequate portion sizes. A study at Wageningen University and Research in The Netherlands, shows that over 25% of food purchased by healthcare institutions ends up as waste.[10] This high rate of food waste from patients' plates can lead to malnutrition-related complications and undermine patients' recovery.[11,12,13] Greater attention, therefore, should be given to food in the healthcare sector, it should be an integral and important part of patient treatment and care.

To achieve sustainability objectives, some hospitals and healthcare systems in Europe are already implementing important strategies for preventing and reducing food waste at their facilities.[14]

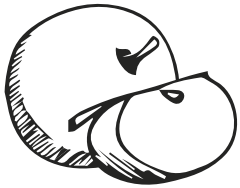
Connecting the dots between green procurement of food, food waste, and malnutrition in healthcare

Promoting healthy and sustainable food and improving the sustainability and efficiency of food procurement presents many challenges for hospitals and health systems. These challenges must be overcome to maximise nutritional intake for patients and reduce food waste.[6] There are also many opportunities, however, for hospitals and health systems to tackle food waste. For example, savings from reduced food waste could be invested in healthier and more sustainable meals for patients and employees. Such investment would increase patients' satisfaction and could help tackle malnutrition in hospitals.

Connections between high food waste and low energy and protein intakes for patients have been highlighted in several studies - patients often do not consume a full meal and lose weight during their hospital stay.[11,15,16,17,18,19] An unacceptable number of patients become malnourished in healthcare facilities. Malnutrition, however, is often not detected or monitored which can lead to:

- Longer hospital stays
- Increased intake of medication
- Increased risk of infections or complications, leading to increased readmissions
- Possible fatality

These consequences have a direct effect on healthcare costs, both at an institutional and system level. A systemic multi-level approach is required to reduce the root causes of these costs, and should be implemented by hospitals and health systems to support sustainable food systems, and re-think the way in which food is purchased, prepared, served, and disposed.



Recommendations

To develop a holistic, coherent, and integrated hospital food strategy, key actions must be taken:

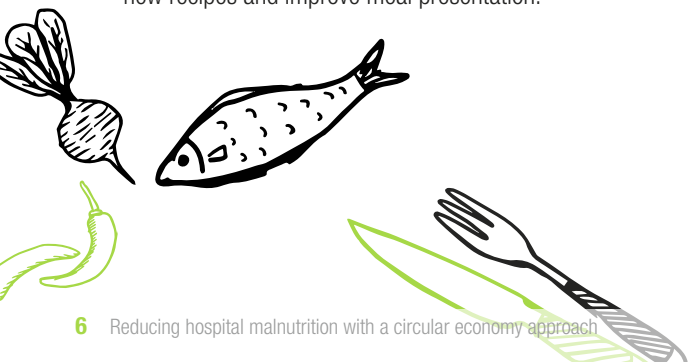
- **Assess the interdependence of all stages of food service**, from food procurement to food waste.
- **Assess and improve the procurement of fresh, organic, and local products** to guarantee high food quality and ensure nutritional requirements are met, with positive impacts for the environment and local economy.
- **Improve menu management and planning**:
  - Carry out regular patient and staff satisfaction surveys.
  - Develop alternative menu systems - such as verbal or electronic menus[21] - allowing patients to choose meals and portion sizes closer to meal times.
  - Improve the choice and variety of food offered to patients, particularly for texture modified diets such as those for therapeutic treatment of dysphagia.

Meal served at Vall d'Hebron University Hospital, Barcelona

Countries such as Australia,[21,22] Canada,[23] Denmark,[24] Ireland,[25] Scotland,[26] The Netherlands,[27] and Wales[28] have developed guidelines, guiding hospitals on menu structure, required food group servings, portion sizes, food preparation, and standardisation.

Recommendations (continued)

- **Improve internal communication and coordination** between wards, food services, and health professionals, whose responsibilities for patient nutrition must be clarified.[29]
- **Identify patients who may require assistance with their meals**; colour-coded trays, for example, can be given to patients at admission to indicate when assistance is required.
- **Establish protected meal times** and provide an "in-between" meal service.
- **Include regular nutrition screening and assess malnourished patients or those at risk** by using screening and assessment tools such as the Malnutrition Universal Screening Tool (MUST), the Mini Nutrition Assessment (MNA), or the Short Nutrition Assessment Questionnaire (SNAQ). These should be performed by trained health professionals, assisted by registered dieticians with the knowledge and skills to address malnutrition-related problems.[30]
- **Raise awareness** among all health professionals and caterers; education about healthy and sustainable food should be incorporated into their initial training. Ward staff should also be taught the importance of patient malnutrition screening, even before discharge.
- **Measure food waste** in kitchens and plate waste from wards, based on visual estimates and more standardised measuring systems (e.g. direct weighing). Reporting the results to employees and patients will raise awareness about food waste.
- **Use leftovers and scraps** in a creative way to produce new recipes and improve meal presentation.



Case studies

The Vall d'Hebron University Hospital in Barcelona, Spain, has over 1,200 beds and approximately 9,000 employees. It offers many services such as mother and childcare, traumatology, and rehabilitation. With a central on-site kitchen the hospital produces approximately 4,800 meals daily including breakfast, lunch, snacks, and dinner.

The hospital's food strategy is still in a transitional phase, gradually introducing local and organic produce. Vall d'Hebron offers approximately 450 menus across the year, including vegetarian menus and individual dietary choices for both staff and patients. This large choice, combined with efforts to improve communication and coordination between kitchen staff and patients, has lead to a reduction in food waste. Furthermore, the hospital was one of the first in Spain to install a crusher to convert organic moist residue into dry residue, ready for composting.

The Dietetics Department adjusts patients' diets to accommodate for allergies, patient preferences, and to prevent malnutrition. The department also carries out satisfaction surveys and monitors patients' intake in different wards. Close attention is paid to menu presentation (especially for oncological, nephrological, and paediatric patients), and dishes' design (especially for geriatric patients). They have also developed a management system for each ward to monitor stock levels, allowing for better management of expiry dates - often a main cause of food waste.

Meal served at Vall d'Hebron University Hospital, Barcelona

The Germans Trias i Pujol University Hospital in Badalona, Spain, provides a range of healthcare services for over 1 million people, and has approximately 2,500 employees. Its on-site central kitchen is currently managed by the catering company Arcasa, and serves patients, staff, and visitors. Approximately 130,000 meals (breakfast, lunch, snacks and dinner) are served annually to patients, and 547,500 meals are served in cafeterias to both staff and visitors. The hospital has incorporated sustainability criteria in their food procurement, with a focus on procuring local, unpackaged products. Even vending machine contracts include such criteria - 50% of snacks are healthy products, such as fresh fruit, salad, drinks without added sugar, high-fibre and low-fat snacks, and Fairtrade, organic coffee.

Since 2010, the hospital has been working on a project which includes the "3Rs Strategy":

- **Reduce** or optimise production at source - approximately 10% of dishes were not consumed, as patients had already been discharged, transferred, or had undergone a surgical operation between ordering and service.
- **Reuse** - approximately 45kg per week of surplus cooked food with a high nutritional value is now donated to social organisations in the city.
- **Recycle** - organic residues produced in the kitchen and in the cafeterias are now recycled (approximately 200 tonnes of food annually on average).

Initially the hospital generated over 1.5 tonnes of organic waste per year - implementing this project has reduced food waste by approximately one tonne. Food waste is now 0.67%, thanks to a working group consisting of kitchen staff, nurses, and managers. This group improved communication and monitoring of patient discharges and movements across departments to adjust food preparation.

Patient satisfaction surveys and assessments of patients' food intake help nurses, along with the endocrinology and clinical nutrition services, to ensure that malnutrition is avoided during patients' stays and that a healthy diet is promoted.

The Regional University Hospital of Malaga, Spain, comprises approximately 1,000 beds, and 5,100 employees welcome over 34,500 patients annually. In an on-site kitchen in the Maternity and Child Hospital, approximately 335,000 meals are prepared each year (breakfasts, lunch, snacks, and dinners), of which 7,300 are made with certified organic products.

Serving organic dishes is still in a pilot phase and these are currently only offered to patients on the first day of their hospital stay. This is due to economic reasons (organic dishes are 73.2% more expensive) and technical reasons (finding consistent suppliers of organic produce is challenging). The hospital, however, prioritises local products in their procurement criteria to promote local economy.

In 2008, the hospital introduced isothermal trolleys to its meal distribution system, allowing staff to maintain optimal temperature, humidity, and presentation of dishes - this stimulates patients' appetites and helps prevent malnutrition. Between 25%-30% of patients are malnourished at admission, which rises to 50% for patients with specific conditions, such as dysphagia.

The hospital also offers a range of menus, giving patients choice from either a basic menu or those designed for patients with allergies, food intolerances, diabetes, oncological problems, or other special needs. Improved communication and coordination between the ward, kitchen staff, and patients, as well as staff training has helped improve food procurement, and reduce food waste and malnutrition.

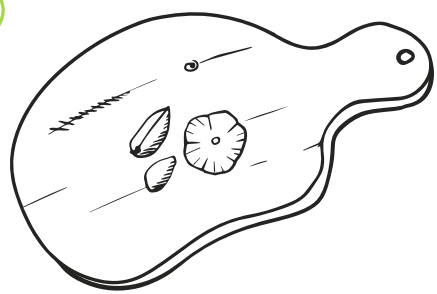
Food service trolley at Regional University Hospital of Malaga

Conclusion

Food is our primary source of energy, and the food we consume can be seen as an indicator of our health and wellbeing. Yet many hospitals and healthcare facilities pay little attention to the quality of the food they serve. Although food is vital to patient recovery, too often they end up not eating or not finishing meals. This is mainly due to food not being tasty or appealing and not reflecting the patients' preferences.

Hospitals and healthcare facilities have a responsibility to provide the right food in the right amounts to patients. They should do so in a way that meets patients' preferences, prevents malnutrition, and facilitates a fast recovery. The quality of food in healthcare is not only important for patients, but also for employees as it also contributes to the overall health and wellbeing of staff.

By implementing healthy and sustainable food policies, as well as sustainable procurement practices, hospitals will prevent food waste, achieve considerable savings, and help reduce malnutrition.



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Health Care Without Harm (HCWH) Europe is the European arm of a global not for profit NGO whose mission is to transform healthcare worldwide so that it reduces its environmental footprint, becomes a community anchor for sustainability and a leader in the global movement for environmental health and justice. HCWH's vision is that healthcare mobilises its ethical, economical, and political influence to create an ecologically sustainable, equitable, and healthy world.

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