



The MECAHIF Project

APPLYING A
CIRCULAR ECONOMY MODEL TO FOOD
IN THE EUROPEAN HEALTHCARE SECTOR

Acknowledgements

HCWH Europe and the Hospital of Niort would like to thank all our partners and participants for their contributions, and sharing their best practices in order to accelerate the transition toward sustainable and healthy food in healthcare. We would like to thank the following organisations and individuals in particular for their support in the MECAHF project:

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The MECAHF project

The MECAHF project - Circular Economy Model of Food in French Hospitals - was developed by HCWH Europe in collaboration with the Hospital of Niort between 2018-2020.

The starting point of the project was the lack of available information and data about food procurement and food waste within the healthcare sector. As a consequence, there is little information about the costs or benefits of transitioning towards a circular model of food production and consumption in health-care.



Hospital of Niort

This project aimed to assess the volume and composition of waste throughout the food supply chain at the Hospital of Niort - from procurement, through to preparation and consumption, and ultimately disposal. Through this project, the Hospital of Niort aimed to fight food waste, save money, and purchase more local and organic products.

Project objectives

The Hospital of Niort had multiple objectives across the three-year project term:

- Reduce food waste by 20%
- Increase the proportion of healthy and sustainable food by at least 10%
- Develop a circular economy of food at the Hospital of Niort

Finally, the project aimed to establish the Hospital of Niort as an example of best practice for a circular economy of food in healthcare and to promote this example throughout the healthcare sector in France and Europe.

A circular economy of food

Circular economy principles reduce waste to a minimum. When applied to food, this means pursuing all options for consumption before finally disposing of food products in such a way that the nutritional value remains within the biological nutrient cycle e.g. composting. Food should be produced and consumed in such a way that it has a positive social and ecological impact - from farm to fork.

Project partners

This project was made possible thanks to the collaboration of the following partners:

Health Care Without Harm (HCWH) Europe represents the voice of healthcare professionals in the European political debate on key themes of sustainable development: chemicals, pharmaceuticals, climate and health, sustainable procurement, and sustainable food.

HCWH Europe presents European politicians with examples of best practice in the healthcare sector on these topics to influence political debates and advance the practice of health professionals. HCWH Europe informs its members (European hospitals, local authorities, and environmental and health organisations) about environmental issues through the organisation of workshops and webinars dedicated to the presentation and dissemination of best practices. HCWH Europe invites its members, including the Hospital of Niort, to participate in European and international conferences organised by the organisation and to participate in working groups, meetings, and exchanges between different European hospitals.

Through its Global Green and Healthy Hospitals (GGHH) network, HCWH engages its members and partners globally to work on ten specific themes of sustainable development and to achieve environmental goals.

The Niort Hospital Center is the reference hospital for the southern part of the Deux-Sèvres department. The hospital annually produces more than 900,000 meals for patients, employees and visitors. The constant production of meals throughout the year leads to food waste. In compliance with the law, the hospital is already sorting its waste, including composting and/or methanisation of its fermentable waste. The Hospital of Niort has been involved in sustainable development initiatives since 2009 and is part of a regional committee that brings together diverse stakeholders working on sustainable development in healthcare.

Project activities

Across the three-year term of the MECAHF project, HCWH Europe and the Hospital of Niort carried out a number of activities to measure and reduce food waste at the hospital, and to establish the hospital as an example of best practice in reducing food waste in healthcare. This project report presents a summary of these activities and includes key recommendations from the project team on how to implement similar initiatives in other healthcare facilities.

The main activities of the project were to:

1. Develop a patient and staff survey about food consumption within the hospital and gain feedback on the hospital menus.
2. Measure post-consumption food waste in the kitchen, canteens and wards to assess the different categories of waste.
3. Establish a sustainable purchasing policy in order to identify products that can be substituted for more fresh, local, and organic alternatives and identify local and organic farmers.
4. Communicate and disseminate the project findings to healthcare institutions in France and more widely across Europe.



FOOD CONSUMPTION PATTERNS IN THE HOSPITAL OF NIORT

Patients and employees were surveyed about the food services at the hospital to improve the popularity of the hospital's food service and menus in order to help reduce food waste associated with the meals served.

Patients' preferences are changing

The patient survey was conducted in early 2019 across five departments: pneumology, gastrology, cardiology, the accommodation facility for dependent elderly people, and the psychotherapeutic centre.

Patients considered the overall food quality was good, but they were generally more satisfied with breakfast and lunch compared to dinner. According to the survey, the most popular products were cheeses and pastries. Additionally, the majority of patients appreciated the presentation of menus, and the time available to eat.

Overall, the survey results suggested that certain improvements would help avoid food waste at the Hospital of Niort, such as improving the presentation of menus, offering different portion sizes, offering a variety of side dishes every day, and allowing patients to season dishes themselves.

Staff impressions of the food service

Staff satisfaction of the food services was also measured through a survey distributed in 2019, which covered current staff satisfaction and their suggested developments for the food service.

Overall, employees preferred products such as cheese and desserts, whilst vegetables and starchy foods (typically side dishes) were the least appreciated. The majority of staff wanted to see a menu with more seasonal products and 40% wanted more organic and local products. Half of employees indicated that they would be willing to pay more for local and organic products, on average €5.92 (current average approximately €4.65).



The results and recommendations from the surveys were developed into an action plan and implemented within the food services for both patients and employees. Two menu rotations were created to take advantage of what is in season, helping to keep products fresh, reduce waste, and appeal to a larger number of patients. The two menu rotations are:

1. Four-week menu that includes a daily menu, enriched menu (foods with high caloric and protein density), a balanced menu, a controlled salt menu (maximum 5g salt/day), and a controlled potassium menu (maximum 2.5g potassium/day).
2. One-week menu that includes a dairy menu with dairy products (fortified or not) and oral milk nutritional supplements, a liquid menu (drinks, liquid oral nutritional supplements, and/or soups), a low fibre menu (maximum 15-20g fibre/day), and a strict low-fibre menu (maximum 10-14g fibre/day).

Specific menus for children, diabetic patients, and patients with eating difficulties were also created i.e. softer foods such as mashed potatoes.

The action plan was carried out at the Hospital of Niort's Central Food Production Unit (UCPA), between February and June 2020 and included:

- Testing new recipes, such as fruit terrine, pastry cream suitable for all textures, rice pudding and semolina pudding (with reduced sugar content), enriched vegetable puree and/or smooth vegetable flan.
- Testing new products, such as tomato vermicelli soup or fruit brunoise.
- Studying the construction/renovation of a new UCPA in response to changes in food safety due to the COVID-19 pandemic, to reduce packaging and the use of single-use plastic trays.

In November 2020, the new menus were put in place along with additional training and support for the food service staff. The results, measured throughout a second satisfaction survey, were generally positive, with improved satisfaction for patients, staff, and visitors, and a reduction in food waste by increasing food intake.



The Hospital of Niort has adopted a new approach to offer menus that uses local and organic products, and minimise food waste.



MEASURING FOOD WASTE

Within a hospital, food can be wasted during both preparation and consumption (plate waste). As part of the MECAHF project, the Hospital of Niort launched studies to measure and categorise food waste and determine the financial loss this represents.

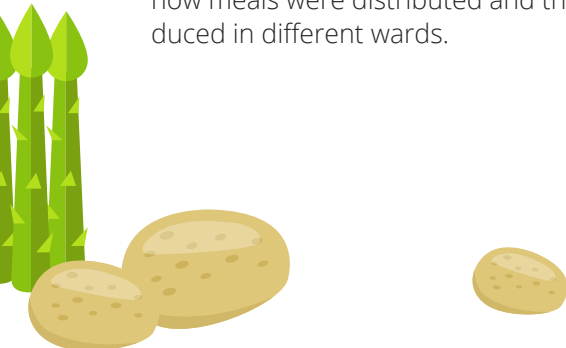
The Hospital of Niort sorted and measured its waste in garbage bags from several sites and services across the hospital in 2018 and 2020 (the first and last year of the project). The measurement and analysis was carried out in collaboration with local associations Compost'Age and CPIE Gâtine poitevine, whose valuable support was crucial in the quantification, evaluation, and analysis of food at the hospital.

In total, four days of waste quantification took place using waste from catering units and various departments, and six categories of waste were identified:

- Household waste
- Recyclable waste
- Bio-waste from food waste (unserved meals)
- Bio-waste from food waste (served, uneaten meals)
- Inevitable food bio-waste (peelings, cores, bones, etc.)
- Inevitable non-food bio-waste (paper towels, etc.)

Patient meals

Following the first waste measurement in July 2018, a study was carried out in three main areas of the hospital (psychiatric ward, maternity ward, and the general hospital) to better understand how meals were distributed and the amount of food waste produced in different wards.



The analysis showed that the greatest amount of food waste came from plate waste (served food that remains uneaten). Using this data, the Hospital of Niort's central food production unit focussed on raising awareness amongst patients of food waste and designed flyers and posters asking patients to not over order or to ask for help when selecting portions.

Staff self-service

Within the canteen the quantity of leftover meals from non-distribution, as well as plate waste, was measured. The analysis shows that the greatest amount of food waste was from unserved meals i.e. overproduction of food for the number of consumers. As the relatively small and irregular amount of unserved meals was insufficient for local food redistribution associations, actions were put in place to reduce food waste in production and consumption, by for example using different tools for portioning.

Within the Central Food Production Unit, the food delivery, storage, and processing units were carefully reviewed. The hospital is currently renovating the central kitchen and distribution systems and is evaluating opportunities to redesign the Central Food Production Unit to reduce over production and food waste.

In the self-service area, a new waste segregation system was established to help employees better sort waste – this has been supported with communication materials that discourage waste.

Results

A comparison of waste generated in 2018 and 2020 shows that there has been a reduction in some waste categories, particularly recycled (from 29% to 23%) and bio-waste (from 35% to 27%), in the central food production unit. This reduction, in part, is thanks to increased training and awareness, as well as better portion controls.

Household waste, however, increased from 35% to 48%. This can be explained by the exceptional circumstances of the COVID-19 pandemic and associated increase in single-use plastic (gowns, masks, gloves, food trays, etc.).



ADOPTING A SUSTAINABLE PURCHASING POLICY

The Hospital of Niort analysed its food purchases and identified products that could be substituted with fresh, local, and organic products. The hospital tapped into a network of local farmers and suppliers with the aim to increase the provision of fresh, local, and organic food by mapping potential producers and suppliers – this work is ongoing.

The Hospital of Niort records the origin and quantity of their food purchases, helping them to identify products that are transported over large distances that could be replaced with more local alternatives.

The Central Food Production Unit has an overview of patient numbers and oversight of food orders, and are therefore best placed to limit purchases with high carbon emissions. To support this process, in January 2020 the hospital designed tools to calculate the financial cost of food waste, and the carbon emissions of food products, in order to inform and support purchasing decisions.

The **food waste measurement tool** provides simple and accessible estimates for the cost of food waste and provides an economic argument for a change in food purchasing decision towards a circular economy model.

The cost of the food products, the cost of preparing meals, and the cost of waste disposal is calculated in euros from the following data provide by the user:

- The number of meals produced in the establishment over a given period (month/year)
- The unit cost of a meal (€)
- The average weight of a meal (g)
- The volume of household waste produced by the establishment (tonnes)
- The cost of waste treatment (in euros per tonne)

The tool automatically calculates the food waste/waste ratio based on the Hospital of Niort's waste measurements, and provides estimates of the amount of food wasted and consequent financial impact. The tool can then simulate the cost impact of changes to the food service, for example, reducing portion sizes, or the cost per meal. These simulations can be compared with one another in real time as well as the initial audit. These simulations can be easily exported and shared with kitchen staff or other departments.

A second **tool to calculate the carbon footprint of food production** was created based on the hospital's purchases and a list of typical products within the ADEME Carbon database - a public database of emission factors, necessary for carrying out a greenhouse gas (GHG) emissions assessment and more generally any carbon accounting exercise.¹

The goal of this tool is to calculate the carbon footprint of products purchased by the hospital and then compare alternatives from different sources (e.g. produced locally). The user can enter purchasing data, for example, of food typically purchased by the hospital in one month or one year, and the cost of food and carbon impacts are then calculated in real time. Similar to the food waste measurement tool, changes can then be simulated, for example, replacing animal proteins with plant equivalents, changing the origin of products (i.e. distance travelled), reducing quantities, or changing prices. These simulations can also be compared.

The Hospital of Niort will continue to map these purchases in order to develop a better understanding of the seasonality of the products. To facilitate progress on the purchase of local products, the hospital met with small and medium regional producers and processors as part of the MECAHF project. Establishing this informal network has helped to develop better working relationships and familiarity with actors and existing networks within the region.

¹ The ADEME Carbon database's list of typical products [FR] <https://www.data.gouv.fr/fr/datasets/base-carbone-r-1/>

COMMUNICATION AND DISSEMINATION OF THE PROJECT

To support broader awareness of the MECAHF project, HCWH Europe documented the process of introducing a circular economy model of food to the Hospital of Niort with a bilingual (FR, EN) project website www.foodforhealthcare.org, as well as updates to HCWH Europe's network through social media and newsletters.

In addition to the project website, the activities of the MECAHF project have been promoted across Europe through our Sustainable Food programme. We have presented the MECAHF project at a number of European level conferences, including the EU Platform of Food Losses and Food Waste in December 2020, and the project has also been featured in a number of journals, such as *Le Courrier de L'Ouest*. The promotion of the project and its results will continue in 2021.

HCWH Europe also organised events and webinars to present and discuss the ongoing activities of the MECAHF project, as well as other work and solutions of various hospitals in France that are also working on food waste.

- December 2018: A theatrical performance in the Hospital of Niort staff cafeteria
- April 2019: A webinar in which we presented some intermediate results of the MECAHF project, as well as the work to prevent and reduce food waste in the Hospital of Perpignan, and the Committee for Sustainable Development in Healthcare (C2DS)
- June 2019: A conference at the Hospital of Niort
- September 2020: A webinar in which we presented the final results of the measurement of food waste at the Hospital of Niort, and the food initiatives of the Hospital of Bordeaux and the Hospital of Moulins-Yzeure, in order to contribute to France's national objective of reducing food waste by 50% by 2025
- November 2020: [A final project conference](#) (online)

Throughout the three-year project term, we have also produced a series of short videos documenting the activities and events held as part of the MECAHF projects, which can be viewed on the project website www.foodforhealthcare.org.



Food waste regulation and the healthcare sector

EU context

Preventing food waste is one of the priority areas of the European Commission's action plan for the circular economy adopted in December 2015. To close the data gap regarding food waste, the EU revised its waste legislation in May 2018 and implemented specific measures for Member States, such as establishing national programmes to prevent and reduce food waste in every step of the supply chain, and most importantly, to monitor and report on waste levels.

In May 2019, through a delegated act, the European Commission established a common methodology to define and measure food waste, with the aim of helping Member States to quantify food waste at every step of the supply chain. With the support of the EU Food Losses and Food Waste Platform, as well as other relevant expert groups, the European Commission will closely follow the implementation of the delegated act, organising regular exchanges with Member States to share the knowledge acquired and support implementation of this methodology. Member States' data on food waste will be submitted mid-2022. The EU reporting framework will help standardise the reporting of food waste by businesses and contribute to global monitoring of Sustainable Development Goal 12.3 which aims to halve (per capita) global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.





French context

In France, the 2013 National Pact to Fight Food Waste was signed by the State and stakeholders from the food supply chain, including farmers, producers, wholesale markets, companies, mass distribution, collective and commercial catering, and local authorities. The Pact includes 11 measures based on these stakeholders' commitments, in particular a national objective to reduce food waste by 50% by 2025 - an annual decrease of 5% between 2013-2025. In April 2017, the Pact was renewed for the 2017-2020 period.

Within the French food waste legislation, the Garot law of 2016 on the fight against food waste introduces a hierarchy of actions to be carried out, with prevention of food waste as the most preferable option, and incineration/landfilling as the least preferable option. This law also intends to strengthen education and raise awareness on actions to prevent and reduce food waste.

Another French law, EGALIM, introduced in 2018, oversees healthy and sustainable food and governs the balance of commercial relations in the agricultural sector, including specific rules to continue the reduction of food waste in catering services:

- Central kitchens, defined as a common kitchen owned by a single restaurant organisation that offers space to store and prepare food for different centres, will be required to sort bio-waste, with bread sorted separately by 2020. Foodstuffs with a high fat content, e.g. sauces and soups, need to be segregated and not disposed into sewage systems – instead these products should be handled by waste processors.
- Food donations will be compulsory in collective catering and the agro-food industry (art. 88) following the obligations introduced by the Garot law.
- Those in charge of collective catering must inform their customers about the food and nutritional quality of the meals served (art.29).

The EGALIM law also requires public catering to use 50% local products or products from labels of origin and quality, such as Protected designation of origin (PDO), Protected Geographical Indication (PGI), or Traditional Speciality Guaranteed (TSG) (of which 20% will be organic products) starting January 1, 2022.

The MECAHF project shows that the Hospital of Niort is ahead of the requirements of the EGALIM law.



Final remarks

Healthcare facilities produce meals throughout the year, with no breaks for weekends or holidays. They distribute millions of meals to patients and healthcare professionals, spending millions on food purchases.

The healthcare sector is uniquely positioned to properly marry agriculture, health, and environmental goals, and to contribute to the debate about how to address tomorrow's food challenges, including reducing food waste. Through their purchasing decisions, healthcare providers can invest in sustainable agriculture, and can act as powerful advocates for action on public policy to build healthy and sustainable food systems. By implementing healthy and sustainable food strategies, healthcare providers can improve public and environmental health, and begin to address the socio-economic disparities that exist within our communities.

With this pilot project, we have demonstrated that catering services in healthcare can play an important role in making food a fundamental part of patient and staff satisfaction with healthcare services, as well as reducing the environmental impact of hospitals. The project has also shown us that involving a wide range of stakeholders, such as patients and local and organic farmers, is essential in developing and implementing sustainable food strategies within hospitals, helping to prevent and reduce food waste. It is important to involve healthcare professionals and other hospital staff through training and awareness raising - with projects like this, it is possible to change the way patients and employees eat and think about hospital food.

Food services in healthcare facilities can play an important role in making food a fundamental part of health and healing while reducing the sector's environmental impact. Hospitals can do this by sourcing produce locally, from smaller farms, and by actively promoting healthy and sustainable diets. By scaling up this approach to the thousands of meals prepared and served in healthcare each day across Europe, we can amplify this great potential.

If you are interested in learning more about this project, or how you can help test the software developed to calculate the carbon footprint of food waste at your hospital, please contact europa@hcwh.org.





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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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