



# Making an environmental difference

How hospital kitchens can reduce production costs and limit their environmental impact

A case study from a Danish hospital kitchen that has succeeded in reducing costs and the environmental impact by introducing 5 eco-friendly initiatives.

All across the world we are realizing the immense impact our way of living has on the environment. National and regional directives are being introduced and across private corporations and public sectors many are taking responsibility for reducing their environmental footprint.

At the Regional Hospital in Horsens, Denmark, they have done exactly that. In a short amount of time they have succeeded in reducing costs and their environmental impact by introducing 5 initiatives in the hospital kitchen:

- Cross-hospital food runners
- Preparing only the food needed
- Organic instead of conventional products
- Switching from pre-made to home-made
- "Good to go" concept

With these and other initiatives the hospital has succeeded in reducing the waste of food with 35 kg / 77 lbs per day, corresponding to 12,775 kg / 28,165 lbs per year<sup>1</sup>. With an average serving size of 500 grams/1,1 lbs<sup>2</sup> this corresponds to 70 meals a day or 25,550 meals per year. According to Kirsten Rytter Knudsen who is the leading kitchen manager at the Regional Hospital in Horsens the cost savings have paid for a full kitchen FTE, a three hours daily food runner, and the change from conventional to organic foods, which has enabled the hospital kitchen to move from 19% to 85% organic within 6 years.

*A lot of people ask me: What did it cost you to convert to organic? Honestly, it didn't cost us anything. That we have changed the way we work and now focus more on bringing down the waste of food has more than paid for it.*

KIRSTEN RYTTER KNUDSEN, LEADING KITCHEN MANAGER,  
REGIONAL HOSPITAL IN HORSSENS

## Cross-hospital food runner

One of the initiatives that have had a significant impact on bringing down the waste of food at the Regional Hospital in Horsens is the introduction of the so-called food runner. Three hours a day the food runner moves between the department kitchenettes, ensuring that they have what they need. Equipped with a telephone, the food runner can quickly fetch more from the kitchenettes in surplus, if for some reason, another kitchenette is running low.

The concept breaks with the traditional mindset of preparing slightly more food than needed and has enabled the kitchen to match the actual need:

*I am so grateful that the Hospital Management supported and prioritized the food runner initiative, enabling us to spend three hours a day moving between the departments. This is what made it possible for us to prepare food as close to what was needed, as possible.*

KIRSTEN RYTTER KNUDSEN, KITCHEN MANAGER,  
REGIONAL HOSPITAL IN HORSSENS

## Preparing only the food needed

Take a look at your facility: How well-informed are the kitchen staff of the overall situation in the hospital? Do they know the exact number of patients they are preparing food for? Do they know when the number of patients change due to admissions or discharges? And how are they informed of patients with specific dietary restrictions?

Without valid access to this kind of information, it is no wonder that hospitals and institutions waste an enormous amount of food every day<sup>3</sup>. How can you go about changing this?

At the Regional Hospital in Horsens they solved this issue by providing the kitchen with access to the hospital's patient flow management solution. The solution is used by the clinical staff to plan the patient flow and care pathways from the patient arrives and until discharge. Information is updated in real-time and thus provides overview of the exact number of patients in each department. Something that is not just beneficial to the clinical workflows, but in the hospital kitchen, too.

1. [https://www.magasinetpleje.dk/article/view/248841/horsens\\_sparer\\_kolde\\_kontanter\\_ved\\_at\\_reducere\\_madspild](https://www.magasinetpleje.dk/article/view/248841/horsens_sparer_kolde_kontanter_ved_at_reducere_madspild)

2. According to <https://www.precisionnutrition.com/what-are-your-4-lbs>, "[...] research shows that most humans eat between three to five pounds of food per day". Divided with three major and two minor meals this provides a serving size of roughly 1.1 lbs.

3. According to the Ministry of Environment and Food of Denmark, the amount of food waste from hospitals, nursing homes and cafeterias exceeds 30,000 tons every year. Source: <https://hsfo.dk/Lokalt/Hospitaler-smider-for-meget-ud-Her-er-planen-mod-madspild/artikel/76803>

Since 2015, dedicated patient flow monitors have been mounted in the hospital kitchen in Horsens, displaying the number of patients in the different departments along with relevant dietary information such as “No pork”, “Diabetes”, “Gluten free”, “Lactose free”, “Vegan”, “Vegetarian”, etc.

*In the past, we sometimes produced specialized food for three or four days before we discovered that the patient had already been discharged. That’s a waste of both food and time. It takes roughly the same amount of time to prepare special diets for three patients as it does to cook for 250 patients. So, it’s a waste of time – and food – if it’s thrown out anyway.*

KAREN BUNDGAARD, KITCHEN COORDINATOR  
REGIONAL HOSPITAL IN HORSENS

The information is also available on computers in the adjoining office area, providing the kitchen management with overviews of the current capacity across the hospital. Here the management use the real-time information to compare the planned number of servings for each individual department with the actual capacity. The information allows the kitchen staff to adjust to changes in the patient flow, which would otherwise not have been communicated to them.

With information from the patient flow management solution and knowledge from the food runner’s daily tour, the hospital has further been able to minimize their waste by:

- Reducing the number of menu options
- Reducing the number of options of ready-made “buffer food”
- Serving appetizers and desserts individually.

*Just the fact that we are serving desserts and appetizers individually has given us a lot. In the past, we could deliver a whole fish terrine and they barely touched it. Now, we simply do small servings, arranged prettily on a blue plate – and only use half of what we used to.*

KIRSTEN RYTTER KNUDSEN, KITCHEN MANAGER,  
REGIONAL HOSPITAL IN HORSENS

### **Organic instead of conventional products**

Organic products are better for the environment. To promote eco-conscious initiatives, the Danish government has the public sector, including hospital kitchens, leading the way<sup>4</sup>.

In the Regional Hospital in Horsens this transition has not only happened more quickly than anticipated; it has also been fully funded by the proactive approach to limiting the waste of food. As a result, the percentage of organic versus conventional agricultural products has gone from 19% to an impressive 85% in just 6 years, according to Kirsten Rytter Knudsen.

### **Switching from pre-made to made in-house**

Another mindset change that the patients at the Regional Hospital in Horsens benefit from is the switch from pre-made to in-house cooked food. Concurrent with the conversion to organic, the hospital kitchen reverted to preparing and cooking as much food on-site as possible. As a result, they now bake their own bread, preserve goods, grow herbs, smoke fish, cook whole chickens, dry raspberries and mushrooms, reuse the peels and discards, and make stock, mayonnaise, crispy fried onions, muesli, and much more on-site.

*I think it is amazing, what we do now and that we get so much praise for our food. Staff and patients can actually taste the difference.*

KIRSTEN RYTTER KNUDSEN, KITCHEN MANAGER,  
REGIONAL HOSPITAL IN HORSENS

4. [https://mfvm.dk/fileadmin/user\\_upload/FVM.dk/Dokumenter/Landbrug/Indsatser/Oekologi/Oekologisk\\_Handlingsplan\\_2020.pdf](https://mfvm.dk/fileadmin/user_upload/FVM.dk/Dokumenter/Landbrug/Indsatser/Oekologi/Oekologisk_Handlingsplan_2020.pdf)

## “Good to go” concept

In the attempt to reduce the amount of throw-away food, the hospital kitchen has also a new concept called “Good to go”. On Friday afternoons, the hospital staff can buy half-priced organic left-overs to bring home after work. In short, the initiative is a win-win situation with happy colleagues and less food waste.

## The development continues

At the Regional Hospital in Horsens they continue to look for new opportunities and ways to improve. Staff attend seminars, classes and courses to find inspiration and are encouraged to translate learnings into practice. They already have a mobile application, providing patients with bedside access to the daily menu, and are hoping to create an interactive version that allows patients to pre-order their meals from their device for a better hospital experience.

The next focus area is reducing the use of disposables such as plates, cutlery, cups for an eco-friendlier and more sustainable kitchen.

### Regional Hospital in Horsens in numbers<sup>5</sup>

- 2018 budget of \$160M
- 1,500 full-time employees of which 26 work in the kitchen
- Bed capacity of 235
- 3,0 days average length of stay
- 69,000 unique patients
- 26,000 admittances
- 165,000 outpatient visits
- 16,000 A&E patients and 22.000 surgeries



IMAGE SOURCE: REGIONAL HOSPITAL IN HORSENS

## Background

In 2012, the Ministry of Environment and Food of Denmark declared that all public kitchens were to be 60% organic by 2020<sup>6</sup>. At the Regional Hospital in Horsens they were at 19% in 2012. Four years later they received the silver marque<sup>7</sup>, which is awarded to eateries that are 60-90% organic, and today they are closing in on the gold marque with 85% of all agricultural products being organic.

## Looking ahead

The eco-conscious changes in the kitchen are not the first innovative project the Regional Hospital in Horsens has initiated. The hospital is well-known for its focus on developing and implementing modern technologies in the attempt to future-proof and optimize workflows. Already in 2008, the hospital received the Golden Scalpel<sup>8</sup> for their involvement in the development of “The Interactive Hospital”, a patient flow management solution that improves patient and clinical workflows across the entire hospital<sup>9</sup>. Since then, the solution has changed name to INSIGHT, but still plays a vital part in promoting workflows in and across the different departments, providing healthcare professionals with complete transparency, collaboration and overview.

5. <http://www.regionshospitalet-horsens.dk/om-os/nogletal/>

6. [https://mfvm.dk/fileadmin/user\\_upload/FVM.dk/Dokumenter/Landbrug/Indsatser/Oekologi/Oekologisk\\_Handlingsplan\\_2020.pdf](https://mfvm.dk/fileadmin/user_upload/FVM.dk/Dokumenter/Landbrug/Indsatser/Oekologi/Oekologisk_Handlingsplan_2020.pdf)

7. The organic food marque is a free, state controlled labeling system for Danish eateries. The Organic Food Marque visualizes how large a part of the purchased food and drinks at an eatery are organic. Both public and private eateries can receive the Organic Food Marque. The Organic Food Marque is available in three versions: Gold (90-100%), Silver (60-90%) and Bronze (30-60%).

<https://www.oekologisk-spisemaerke.dk/generelt/>

8. The Golden Scalpel is an innovation award presented once a year by the Danish newspaper Dagens Medicin.

9. <http://www.regionshospitalet-horsens.dk/presse/nyhedsarkiv/2008/2008-09-04-den-gyldne-skalpel/>

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