

Tackling Food Waste Through Process Re-design



Opportunity showcased:



Tackle systemic waste at its roots

One of the most effective ways to tackle waste is to ensure that it is not generated in the first place.

When considered in the context of a large system like a hospital kitchen service, waste generation compounds significantly with every passing day.

In this project, the NUS team sought out ways to nip food-related waste in the bud by considering the complete journey of meal service from preparation to consumption.

Other opportunities shown:



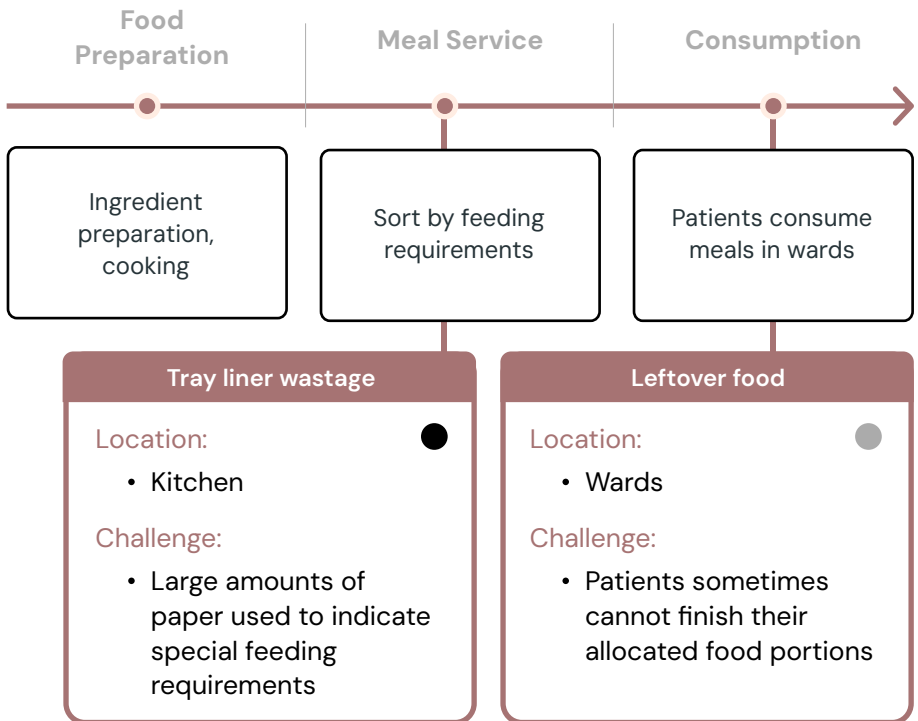
Simplify adoption with existing platforms



PROJECT CONTEXT

Food portions prepared in the Tan Tock Seng Hospital kitchen cater to a range of feeding requirements. Due to the nature of mass food preparation, sorting and serving, a large amount of waste is generated each day. The biggest challenge lies in identifying opportunities to stop waste at source.

CURRENT MEAL SERVICE TIMELINE



Stakeholders involved

- Kitchen staff
- Nurses

Research Approach

EVERYDAY
ACTION STEPS

ACTIVITIES DONE
BY TEAM

INSIGHTS
IDENTIFIED

Take a look
around

Observed behind-the-scenes processes of food preparation

Some waste is inevitable due to safety and hygiene concerns



Brainstorm
together

Held a workshop with nurses, chefs and dietitians to address issues and explore solutions

'Food adjacent' waste such as tray liners is also a problem



Talk to
people

Talked to nurses in wards about meal service

Patients do not normally ask for smaller meal portions even if they struggle to finish food



Build
quickly

Designed and tested solutions

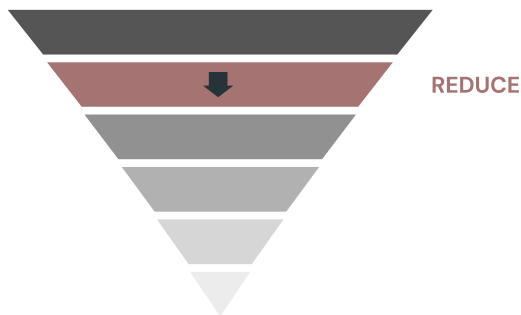
Gather
feedback

Design Challenge

How might we reduce waste while fostering responsibility and accountability for sustainable mindsets and behaviours in kitchen processes?

Design Solution

The team focused on two final design solutions to tackle waste across the entire food service journey in Tan Tock Seng Hospital.

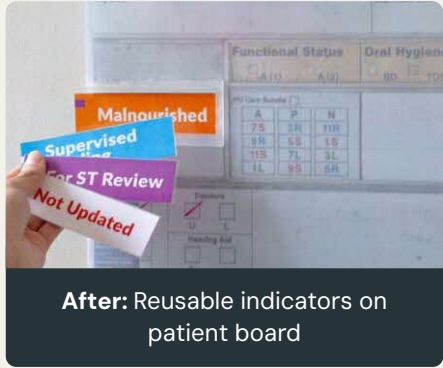


Their solutions aim to **reduce** material waste generated from sorting feeding requirements, and food waste from meal leftovers.

Design Solution 01

Special Feeding Requirement Indicators

A reusable indicator card system integrated with existing label slots on patient boards.



Consider this!

Can you Tackle systemic waste at its roots?

One of the most effective ways to tackle waste is to identify and address its root cause.

The kitchen's current method of cutting hundreds of A4-size papers into tray liners to denote feeding requirements is an inefficient use of both paper and time.

This solution addresses the root cause of paper waste by proposing a reusable indicator system instead.



Problem Addressed

The reusable indicator cards differentiate each patient's feeding requirements as effectively as the current disposable tray liner system while reducing large amounts of paper waste.



How?

Indicators placed on existing patient boards denote unique feeding requirements, and are easily changed out using the slots provided.

The indicators' prominent placement, coupled with bold graphics, colours, and labels makes it easy for nurses to read and serve the correct meals.

All indicators are laminated and sturdy, ensuring that each set can be reused for a long time.



Consider this!

Can you **Simplify adoption with existing platforms***?

**Refer to pg. 58 to know more.*

Reduce Portion, Increase Consumption

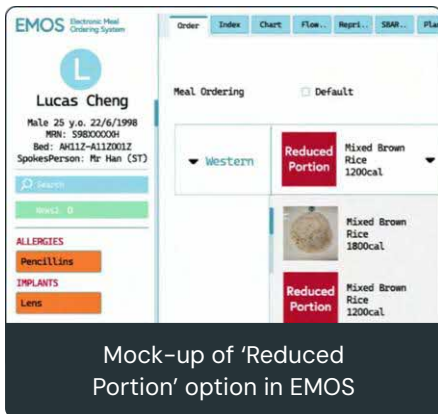
Adding a 'reduced portion' option directly into the EMOS (Electronic Meal Ordering System) for nurses, and raising awareness among patients about the option to ask for less rice via a laminated poster.

PROBLEM ADDRESSED

Nurses can now select smaller rice portions with just one click. Previously, nurses had to submit detailed requests for reduced portions for each patient.

OUTCOME

Patients are more likely to finish their food resulting in a reduction in food waste from leftovers.



Mock-up of 'Reduced Portion' option in EMOS



'Reduced Portion' awareness poster in wards

User Testing

Reduction in paper-related expenditure

Special Feeding Requirement Indicators

The team tested the new indicator system with 20 nurses, with 90% of them feeling that this was more convenient to use.

[2 week testing period]



Before:
\$6,866
After:
\$143

ANNUAL SAVINGS IN
PAPER EXPENDITURE

\$6,723

The new indicator system could save **~722,200 paper tray liners** annually once it is rolled out across the entire hospital.

Reducing food waste and spreading awareness

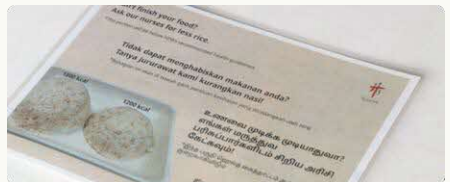
Reduce Portion, Increase Consumption

The team surveyed 20 patients, and found that **all** would opt for reduced portions. They also received positive feedback from a dietitian and the head chef about the viability of reduced portions.

[1 week testing period]

RICE SAVED ANNUALLY IF
10 PATIENTS OPT IN/WARD

9800KG



This significant reduction in wasted rice portions means that **~\$14,900** can be saved annually.



TACKLING FOOD WASTE THROUGH PROCESS RE-DESIGN



TEAM MEMBERS

GOH BING JUN

Bing Jun is a dynamic and cheerful designer fuelled by a deep-seated passion for continual learning and exploration. Specialising in industrial design, he aspires to shape the future by creating innovative and groundbreaking products.

SHAHEED IBNU MOHAMED HASSAN

Shaheed is a designer who firmly believes in the interconnectedness of improving human life through both tangible and intangible designs. Infusing his life with a playful yet impactful approach, he aspires to contribute to making the lives of others a tad bit better.

ZHANG BO YA, GRACE

In her final year as a student, Grace assumes the role of the team's nurturing figure. Her vibrant and compassionate nature infuses joy and wonder, as she hopes to create a positive and uplifting atmosphere and designs for everyone around her.