



## SUSQI PROJECT REPORT

### Reducing waste on tea rounds

**Start date of Project:** September 2024

**Date of Report:** December 2024

**Team Members:**

- Anneka Moore, Housekeeper
- Samantha Jones, Domestic Assistant



**Background:**

The supply chain contributes over 60% of the carbon footprint of the NHS. While often overlooked, items like teabags contribute to the environmental and sustainability impact of healthcare services, as food and drink supplies involve considerations of production, packaging and waste emissions. Tea bags are used once and are often non-recyclable due to synthetic fibres and contamination from tea residues. We have focused on reducing the use of teabags in the first place, by making tea in a teapot, rather than individual cups.

Milk has a high carbon footprint, with approximately 70% of its emissions stemming from on-farm activities, and the remaining emissions associated with processing, packaging, transportation, and refrigeration. While milk provides essential vitamins, minerals, and proteins, a lot of it is wasted and not drunk by anyone. The [Waste and Resources Action Programme \(WRAP\)](#) estimated that the UK loses around [330,000 tonnes of milk each year](#), which equates to losses of over £150 million. Reducing milk wastage can significantly lower both its environmental and financial impact. Ordering data for the George Eliot Hospital in November 2024 showed we ordered over 2,250 pints in 1 month!

The change is being implemented within a hospital ward setting, led by housekeepers and cleaners who support ordering and hostess staff in provision of tea to patients.

**Specific Aims:**

To reduce the number of tea bags used during patient tea rounds and to reduce the volume of milk wasted due to being left out on two trial wards.

**Methods:**

We decided to focus on two wards initially (Alexandra and Felix) to ensure this change was successful and well received by staff and patients.



### Studying the system

#### Teabags

First we looked at the current process for tea being provided to patients on the ward. Times for offering hot drinks were identified:

- 8:00-8:30am: hostess
- 10:00am: hostess
- 1-1:30pm: hostess
- 5pm: hostess
- 7pm: hostess
- 7.30pm-8am: provided by ward staff (usually on patient request) dependent on staff availability. There is a hydration station on the ward which offers caffeinated coffee, hot chocolate, malted milk drink and caffeinated loose tea bags available.

We identified that hostesses on both wards were making individual cups of tea for patients using one tea bag per patient. There were teapots available on both wards, but these were not usually used. As we consider expanding this project, we would engage the catering management team should we require teapots to be purchased.

#### Milk

On Alexandra ward, milk is left out on a tea trolley (hydration station on the ward) through the day so staff and patients can access it to make drinks. We engaged staff through conversations and having a milk wastage record sheet next to where milk is left out for patients. Staff recorded the date/time if they were throwing milk away, and how much was disposed of. From the 2nd and 6th December 2024, 48 pints (568.26ml/pint) of milk was wasted on the ward.

Table 1: Summary of milk provided and wasted per day from 2nd-6th December 2024.

	Milk Sent For Day (pints)	Milk Waste for Day (pints)	% of Milk wasted
02-Dec	16	10	63%
03-Dec	16	9	56%
04-Dec	22	9	41%
05-Dec	6	10	167%
06-Dec	14	10	71%
<b>Total</b>	<b>74</b>	<b>48</b>	<b>64.8%</b>

On Felix ward, the drink station is kept in the kitchen and milk is regularly returned to the fridge and so minimal amounts are wasted.

We engaged with some other wards and found there is more variation in how milk is offered and stored. Some wards are similar to Alexandra and others to Felix. Occasionally, staff are opening new bottles of milk before using up already open bottles first. Some wards have smaller bottles of milk however only



small amounts are used and the rest wasted. Over ordering has occurred which means there is not enough fridge space which can also lead to wastage. We also engaged with the catering team, who were able to provide a breakdown of milk ordering across the Trust. This enables us to see which wards are ordering the highest volume in total, and the highest volume per patient.

### *Implementing change*

#### Tea

We engaged with hostess staff to propose that teapots be used on tea rounds instead of making individual cups of tea. In the teapot approximately 8-12 tea bags will be used (with top ups of water) for a ward of approximately 28 patients.

Night staff and some afternoon staff would continue to make individual cups for now given it is less likely all patients would be awake / requesting tea at the same times through the night.

We reassured staff that this change would not reduce choice or availability of tea/hot drinks for patients in any way to ensure patient experience and care was not negatively impacted.

#### Milk

We have focussed on Alexandra ward to trial changes given our second trial ward already had minimal wastage. We have introduced a small lidded jug for milk to be poured into, so that smaller volumes of milk are left out at a time. The date and time of when milk is left out has been recorded on a tracking form at the hydration station. The same form has been used to record how much milk is wasted with use of the jug. We have several jugs on rotation which are washed in the dishwasher daily after use.

Should the changes be successful, it can be scaled to other wards who are practicing in a similar way who have higher ordering rates as per the catering teams data.

### Measurement:

#### *Patient outcomes:*

We do not anticipate any changes to patients' health / clinical outcomes as a result of this change. Tea and other drinks will still be provided on tea rounds and additionally at any time they are requested by a patient (as per process prior to the project), so there are no increased risks to patients (e.g. of dehydration). We have therefore not measured patient outcomes.

#### *Environmental sustainability:*

The carbon footprint (expressed in Carbon Dioxide Equivalents, or CO<sub>2</sub>e) is a common measurement used to show environmental impact. A process-based life cycle assessment was used to estimate the carbon footprint of the teabags and milk. The carbon footprint of a tea bag was taken from *Mike Berners-Lee (2020). How bad are bananas?.* Packaging, transport of tea bags from Rugby to the hospital and waste disposal of used tea bags were estimated using the *UK Government Greenhouse gas conversion factors 2024* database.

Emission factor per tea bag: 0.0173



GHG emissions associated with milk production, packaging, distance and mode of transport were estimated. Emissions for a pint of milk was taken from *Mike Berners-Lee 'How bad are bananas'*. An empty 4pint bottle was weighed by the team and converted into GHG emissions for packaging materials using emission factors taken from the *UK Government Greenhouse gas conversion factors 2024* database. Transport emissions were based on distances from the supplier in Wigston to the hospital. Conversion factors for waste were taken from the *UK Government Greenhouse gas conversion factors 2024* database. The disposal of milk was not taken into account as we assumed this would be poured down the sink. Dishwashing of the milk jugs was accounted for using an emission factor from *Mike Berners-Lee 'How bad are bananas'*.

Emission factor per pint of milk: 1.14 kgCO<sub>2</sub>e

Emission factor per wash of 3 jugs in dishwasher = 0.1175 kgCO<sub>2</sub>e

CO<sub>2</sub>e reduction was translated into miles driven using emission factor 0.33939 kgCO<sub>2</sub>e/ mile driven in an average car with unknown fuel, from the UK Government Greenhouse gas reporting: conversion factors 2024.

*Economic sustainability:*

The brand (Typhoo) and cost of teabags (£3.54 per pack of 440 bags, £0.009 per bag) was obtained from the online ordering system. The potential for additional water waste was considered with tea made in a teapot as compared to individual cups. This was monitored and not found to be an issue. We have therefore not included this in our measurement.

The catering team provided the cost of milk to the Trust - £1.24 per 2 litre poly bottle. We have therefore assumed a cost of 35.23p

*Social sustainability:*

We have obtained feedback from patients and staff via informal conversations to understand how the change may impact on their experience and if it is important to patients that we aim to reduce our waste / environmental impact. We obtained feedback from various staff groups via information conversations.

**Results:**

*Patient outcomes:*

As above this project will not impact on patient outcomes.

*Environmental and economic sustainability:*

Tea Bags

Prior to the change, 440 teabags were being used per week on each ward. Following implementation, between 220-300 tea bags are being used per week. This is a reduction of 140-220 bags per week.

	Lower reduction	Higher reduction
KgCO <sub>2</sub> e	2.43 kgCO <sub>2</sub> e	3.81 kgCO <sub>2</sub> e
£	£1.26	£1.98



As we have implemented this change on two wards, the projected saving is £131.04–£205.92 and 252.72–396.24 kgCO<sub>2</sub>e, equivalent to 744 and 1,166 miles in an average car.

#### Milk

In the week prior to our intervention, 48 pints of milk was wasted on the Alexandra ward. Post our intervention, 4.44 pints were wasted. This is a reduction of 43.56 pints (24.75 litres) per week (5 days). This is a significant reduction in total waste, from 64.8% of milk wasted on the ward to 6% wastage. Accounting for the washing of milk jugs 3 times a day, this is a saving of £15.34 and 49.08 kgCO<sub>2</sub>e per 5 day week.

With a similar reduction maintained across a year, this would be a saving of 2,265.12 pints of milk, £797.70 and 2,552.16 kgCO<sub>2</sub>e per year, equivalent to driving 7,520 miles in an average car.

Savings for both tea and milk are based on weekday usage only. We have not included weekends as data was not collected due to the project leads not working on weekends. There is potential to further improve these savings by including weekends and also by optimising practice in the evenings.

If the same changes were implemented for tea bag usage across all 16 wards in the main hospital, assuming a similar level of usage and reduction, this could bring potential savings of £1,048 - £1,647 and 2,022 - 3,170 kgCO<sub>2</sub>e. As per the Trust catering data, 2,259 pints of milk were purchased Trust wide in November 2024, which is approximately 27,108 pints assuming similar volumes year-wide). As a conservative estimate given waste volumes vary significantly ward to ward, a 20% Trust wide reduction (5,422 pints) would bring savings of 6,181 kgCO<sub>2</sub>e and £1,910.

#### *Social sustainability:*

On our ward the patients are elderly and prefer tea from a teapot. One patient said, *“it was like drinking hot water and no flavour”* referring to individually made cups.

The hostesses on the ward report they like using the tea pot, which is easy to use and saves time. From a pot she reports using approximately 8 bags instead of 27-28 per round. One hostess stated *“I use 3 tea bags in a teapot and add 3 more if needed. All my patients love my tea, it is perfect in colour and flavour”*

Hostess staff commented *“another wastage of milk, can’t the staff put it back into the fridge once they have finished”* and *“we have too much milk, and have to bin it due to staff not checking the date and using the short date first”*. In response to the change, hostess staff said, *“that is a good idea, means less milk is being wasted”* and *“good idea, just remind staff to put the date and time”*

One patient said *“oh fresh cold milk, like the idea”* and a HCA said *“I like the idea but it does take a bit of time, I liked just getting the bottle out of the fridge”*. Despite some mixed reviews to the project such as the increase in time required, engagement in the change has been improving by updating staff on patient perceptions of the project as well as the financial and environmental benefits. We anticipate by sharing the outcomes we can continue to build engagement across the team.



## Discussion:

The introduction of tea pots has proven effective on both wards. Hostesses reported a reduction in time spent preparing tea and a decrease in tea bag wastage. However, further support and encouragement are required for evening and night staff to utilise tea pots. Currently, individual teas are being prepared for 4-6 patients at a time overnight, which could increase waste. By promoting tea pot usage, patient satisfaction and resource management can be improved.

On Felix Ward, milk wastage was already minimal due to the hydration station's location within the kitchen area, enabling staff to promptly return milk to the fridge. However, we have seen a decrease in waste on Alexandra Ward where previously milk wastage was 9.6 pints per day. While we have seen a significant reduction down to 6% milk wasted, there is still room for improvement. Our data shows lesser wastage when hostess staff are present compared to when they are absent (E.g. evening). This has been a positive step for reduction and awareness raising, and coupled with ongoing education and support this project has the potential to further minimise wastage.

There are some limitations related to staff practices. Inconsistent usage of tea pots and milk management practices across shifts and staff groups (e.g. the hostess staff are more aware and consistent in practice, likely due to the nature of their role and engagement in this project). Engagement is needed with overnight staff to ensure continuity. Staff on the wards are extremely busy and there can often be staff shortages which mean this practice may be deprioritised.

Use of the milk jugs relies on accurate recording from staff to ensure the date and time milk has been left out is recorded. Not doing so could lead to continued wastage, or a risk that a patient is given milk that is not fresh or appropriate to consume. Having the recording chart right next to the milk and continuing to give staff reminders of the project is a way to mitigate this. If any doubt, milk would be disposed of rather than given to a patient to avoid any compromise to patient care.

There were some instances of Hostess practice increasing risk of wastage, e.g. by leaving a full bottle of milk out on the hydration station after a tea round. This is done in patients best interests, as staff want to ensure milk is available to patients at all times. However, having just had a drinks round with another planned for later, and knowing patients can be given drinks at any time on request, means this increases risk of waste. Addressing this required direct conversations and reinforcement of best practices.

### Next steps

Staff training and education.

When the project leads were unavailable to monitor practice on the ward, we found staff could move back into previous habits. This shows the importance of continued reminders, education and communicating the benefits to staff to maintain change. We will continue to remind staff and reinforce proper milk usage and storage practices through targeted training sessions. We will also promote consistent tea pot usage across all shifts, supported by supervisory encouragement.



Cake and Shake rounds:

We are beginning to offer a cake and shake round in the afternoon (starting in January 2025) aiming to provide milkshakes and cake to patients daily at 2:30 PM to support hydration. We will carry over learning from this project to continue to measure wastage and promote options for minimising this.

Engagement with waste management and catering teams to spread and scale

We have shared our findings with the waste management team and catering team. This has supported to establish a baseline for waste monitoring and identify improvement areas in ordering, storage, and usage practices.

The catering team has provided us with data on the wards ordering the highest volume of milk. By collaborating we can aim to reduce milk wastage in more wards. Across the hospital's 16 wards (391 beds, excluding Drayton Ward in maternity), a total of 2,259 pints of milk were purchased in November 2024:

- 851 pints of whole milk (blue cap)
- 1,408 pints of semi-skimmed milk (green cap)

The highest-consuming wards were AMU, Elizabeth, Coton, Nason, Melly, and Alexandra, with AMU being the largest ward. There is potential for us to explore current practice and milk wastage across these high-volume wards, to bring further savings.

### Conclusions:

We found the project to be very interesting and educational. When we started the project we didn't know that milk savings could be identified and have an impact on both carbon reduction and cost savings, as it is not something that has been routinely measured on the ward in the past.

The recommendations about using milk/team differently require engagement to embed the long term change and we feel that the staff need to be supported and educated on why we are doing this and the effect / impact.

We feel this has opened up conversation amongst managers, colleagues to make positive changes in the ward. Working with the waste management team, catering team and the ward managers who all offered help and support contributed to the success and learning from this project, this included time to do the research, communication with ward hostess, staff and patients.





## Critical success factors

Please select one or two of the below factors that you believe were most essential to ensure the success of your project changes.

People	Process	Resources	Context
<input type="checkbox"/> Patient involvement and/or appropriate information for patients - to raise awareness and understanding of intervention <input checked="" type="checkbox"/> Staff engagement <input type="checkbox"/> MDT / Cross-department communication <input type="checkbox"/> Skills and capability of staff <input checked="" type="checkbox"/> Team/service agreement that there is a problem and changes are suitable to trial (Knowledge and understanding of the issue) <input type="checkbox"/> Support from senior organisational or system leaders	<input type="checkbox"/> clear guidance / evidence / policy to support the intervention. <input type="checkbox"/> Incentivisation of the strategy – e.g., QOF in general practice <input type="checkbox"/> systematic and coordinated approach <input checked="" type="checkbox"/> clear, measurable targets <input checked="" type="checkbox"/> long-term strategy for sustaining and embedding change developed in planning phase <input type="checkbox"/> integrating the intervention into the natural workflow, team functions, technology systems, and incentive structures of the team/service/organisation	<input type="checkbox"/> Dedicated time <input type="checkbox"/> QI training / information resources and organisation process / support <input checked="" type="checkbox"/> Infrastructure capable of providing teams with information, data and equipment needed <input type="checkbox"/> Research / evidence of change successfully implemented elsewhere <input checked="" type="checkbox"/> Financial investment	<input type="checkbox"/> aims aligned with wider service, organisational or system goals. <input checked="" type="checkbox"/> Links to patient benefits / clinical outcomes <input type="checkbox"/> Links to staff benefits <input type="checkbox"/> 'Permission' given through the organisational context, capacity and positive change culture.