



SUSQI PROJECT REPORT

Project Title: Reducing Wastage in the Medicines Pathway

Start of project: May 2023

Date of Report: July 2023

Team Members:

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Background:

The medicines pathway from manufacture to administration and wastage contributes a significant amount of plastic waste which, due to environmental waste handling regulations, are sent for incineration. The production and use of pharmaceuticals contributes more than 12% of carbon emissions in Health & Social Care. While solutions to recycle plastic waste produced in the medicines pathway are being explored nationally, our experience has suggested that there is room to reduce the amount of medicines dispensed in the first place.

With these challenges in waste management alongside the aim to reduce financial expenditure on medicines, we have for some time been looking to reduce waste production from medicines. The Pharmacy Department currently undertakes an assessment and reuse process for all medicines returned from clinical areas, assessing fitness for use and checking that they have not left the controlled storage parameters of the hospital. Through this programme, pharmacy achieved a financial saving of £61,682 by reusing medicines which would otherwise have been discarded. This equates to a reduction in CO2 emissions of 7895kg (converted using the Greener NHS formula).

While this is a significant achievement, this has led us to question why this volume of unnecessary dispensing is happening in the first place. Professional experience has shown that some proportion of medicine supplies are in fact unnecessarily re-dispensed items. This can happen for a variety of reasons (damaged medicines, increased dosage/frequency) but one of the more impactful from the perspective of patient care is to do with transfer. When patients move bed space or ward, it is not always the case that medicines are transferred with them. This not only leads to items being requested again, but it also leaves the patient in the new location without the medicines that we have dispensed for them, which in turn may lead to missed doses. Depending on the medicines in question, this could have a significant detrimental impact on the patient (e.g. when doses of medicines for the treatment of Parkinson's disease are missed).

We therefore concluded that there would be value in exploring our suspicions further, with the aim of reducing the volume of medicines entering the pathway (and therefore the waste stream) and ensuring that medicines are available for patients when they need them.

Specific Aims:



Short term (during competition period): Explore the scope of dispensed items and use this data to propose initiatives/changes to working practices to reduce the number of items unnecessarily dispensed.

Long term: To implement proposed initiatives/changes to working practices to reduce the number of items unnecessarily dispensed, saving money, carbon, staff time and reducing the number of inpatient missed doses.

Methods:

Studying the system

We collected data over a one month period. Data gathering was driven by dispensers to identify requests for unnecessary resupply which can be seen on pharmacy systems. This enabled us to understand the extent of the problem and reasons for redispensing, and to inform plans for change ideas.

Measurement:

Patient outcomes:

This is a data-gathering/fact finding project at this stage, so we do not anticipate any measurable impact on patient outcomes as medications that are needed by patients will still be provided as usual. While the aim of this project at this stage is essentially to investigate the issue, we anticipate that missed doses are being caused by failure to transfer medicines with patients and if this is found to be the case, any future projects/cycles would look to reduce incidents of missed doses through the reduction of this, which would have an assumed positive impact on patient outcomes.

Environmental sustainability:

Carbon emissions for reduced medicine waste were calculated using the 2020/21 Greener NHS Database emission factor for Pharmaceutical (0.128 kgCO₂e / £ spent).

Economic sustainability:

The costs of medications were already available within our team.

Future projects/cycles will look to capture the value of avoiding re-dispensing, however this is a demand/supply relationship so any reduction in re-dispensed items would ultimately result in reduced purchasing.

Social sustainability:

We did not measure social sustainability however have detailed some potential impacts in the results section.

Results:

Patient outcomes:

As described above, actual missed-dose data is available and will be measured in future projects/cycles to assess the impact of any interventions made. There is anecdotal evidence in the data showing a gap of more than 24 hours between dispensing for MAU and dispensing for another ward during the same episode.

Environmental sustainability:

In the month there were 243 re-dispensed items. Projected across a year this equates to 12,288 kgCO₂e.

As a conservative estimate, if we reduced our re-dispensing by 10% in the next year, we would save 1,228.8 kgCO₂e per year, equivalent to driving 3,629 miles in an average car.



Economic sustainability:

In the month there were 243 re-dispensed items accounting for 4% dispensing undertaken and with a total drug-cost value of £8k (extrapolated to £96k annually). This represents approximately 12 hours of dispensing time and 4 hours of accuracy checking time per month, at a staffing cost of approximately £2.5k per year.

As a conservative estimate, if we reduced our re-dispensing by 10% in the next year, we would save £9,600 per year.

Social sustainability:

We did not specifically measure social sustainability, however a saving of 16 staff hours per month may have positive implications for staff with heavy workloads who will be able to redirect this time to higher value activity.

Discussion:

In summary, the data collected does support the hypothesis that some medicines wastage in the Trust is driven by unnecessary re-dispensing. The results suggest that failure to transfer medicines with patients is one factor in this. This is, however, an early stage of a potentially wider project, in which further investigation into the root-cause of this is required before identifying a potential action plan to address.

Further data on missed doses would be valuable, though there are limitations in attempting to map any reduction in these to improved patient outcomes directly. To understand this better, qualitative data on specific medicines pre vs. post intervention would be useful, as there are cases where the impact of one to the other is particularly clear e.g. in Parkinson's disease.

The key limitation of this project so far is that it does not include any dispensing undertaken by SWFTCS outpatient Pharmacy, which covers all TTO dispensing in the Trust. There is anecdotal evidence of a high rate of returned TTOs, data gathering on which has recently commenced to assess the size of the problem. The causes for this are likely to be different to that of re-dispensed inpatient medicines, and it will require further investigation to understand this - this work is currently underway.

In the current staffing climate, this project has been quite difficult to prioritise for those involved, and it is clear that further investigation of, and action to address, these findings will require some support and free engagement from ward staff.

Conclusions:

This has been a worthwhile project, from which we have drawn some key conclusions:

1. The availability of medicines for patients at the time they are needed is, at least some of the time, compromised by failure to transfer those medicines when the patient moves to another ward.
2. The cost associated with re-dispensing is somewhat recovered by returns management processes, however this has several flaws:
 - a. Dispensing medicines unnecessarily, and then returning those medicines for reuse, is a waste of pharmacy time which could be better spent on patient-facing work as part of the clinical and technical pharmacy ward service.
 - b. Depending on the medicine/patient presentation, failure to transfer medicines with patients may impact on patient experience and outcomes and, by extension, length of stay and flow; regardless of whether the financial cost is recovered through returns processes.

- c. Dispensing medicines unnecessarily results in increased stockholding, which is known to increase waste through expired/damaged medicines (see Carter Review).
3. Not all medicines dispensing carried out in the Trust was in scope for this project. Notably, TTO returns are known to be high in volume. This is under scrutiny in a separate project currently.

The findings of this project go hand-in-hand with the work being undertaken to investigate TTO returns. The next steps will be to present this work to the TTO project group with a view to incorporating this data, further drill-down and actions to address into the same project. While the specific actions require more investigation, initial suggestions include:

1. A communications campaign to share these findings with ward staff, to increase awareness and promote medicines transfer.
2. A change to patient transfer procedures to include 'empty bed, open lockers' initiative, which would ensure transfer of all locker contents including medicines.
3. Addition of a check for porters when handing over medicines in admissions areas, to ascertain if the patient has moved in the time taken to dispense the requested medicines and facilitate transfer.

References and Resources

- [Productivity in NHS hospitals - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

