



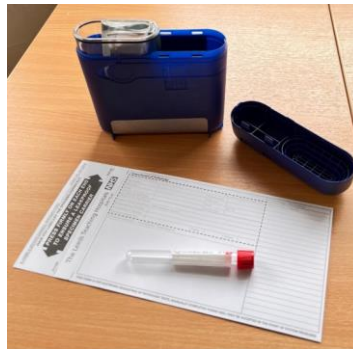
CHANGING THE 3 MONTHLY BLOOD TEST POSTAGE KITS FOR PATIENTS ON THE RENAL TRANSPLANT REGISTER

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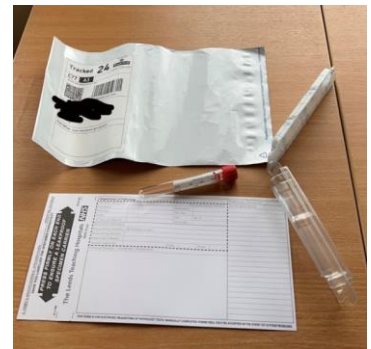
Project aims: To measure the environmental, social and financial benefits of a new postal system compared with an old postal system.

Background: Patients active on the transplant register and those listed for simultaneous kidney and pancreas transplant must have regular blood tests (every 1-3 months) to re-examine their antibodies. With patients all over the region, transporting these samples to the laboratory can be logistically challenging and expensive.

Strategic choice of project: As a team, the renal transplant department is already very proactive in seeking out sustainable changes. Prior to the Green Ward Competition, we implemented changes in the way blood tests are sent to patients. Previously, patients would be sent a blood tube in a "Safe lock" box (image a), which had to be sent back to the hospital from a post office, at an inconvenience to the patient. The boxes themselves were expensive and single use, creating a large amount of plastic waste. Use of a lightweight, recyclable plastic pouch with pre-paid postage labels (image b) has been implemented, eliminating the trip to the post office (in favour of the closest post box) to the convenience of patients. As clinical nurse specialists we felt uniquely placed to be able to measure the impact across the triple bottom line of sustainable value and promote implementation of this change on a wider scale.



a) Old Kit: Blood tube, blood card, blue 'safebox' provided by RoyalMail.



b) New Kit: Blood tube, blood card, plastic case for blood tube, plastic envelope

Methods / Approach:

We audited the number of patients suitable for the change to the new blood test kits. The number of the patients in our clinics changes regularly due to starting dialysis or having a transplant. We estimated on average there will be 11 patients under assessment or active on the simultaneous kidney and pancreas register, requiring monthly blood tests, totalling 132 tests annually. On average there will be 30 low clearance (pre-dialysis) clinic patients active on the transplant register who require 3 monthly blood tests, totalling 90 tests annually. This gave us an average annual total of 222 blood tests completed a year.

Environmental: A process-based carbon foot-printing analysis was used to estimate the carbon footprint of both kits (blood tests were the same in both kits and therefore excluded from analysis). Data on the type of material was taken from product specification sheets, and each material weighed. It was assumed both kits were disposed of in domestic waste as despite part of the new kit being recyclable, we cannot rely on staff consistently separating and recycling this section. Carbon emission factors for waste disposal were taken from a recent study from Rizan (2021) looking at the carbon footprint of waste streams in a UK hospital. Financial data was used to estimate the carbon emissions associated with postage. For this analysis we looked only at the emissions associated with sending the kits from the hospital to the patient only.

Social: We conducted semi-structured telephone interviews with previous patients who have used both kits. We also liaised with the Manchester renal transplant coordinators, as their service continues to use Safe Lock boxes, to inspire larger-scale change.

Financial: Our team had postal costings for both the old kit and the new kit. The old kit we sent out cost £13.20 for each lock box and 1st class packaging. The new kits used are smaller and more compact with a cost of £4.41 with a total saving of £8.79 per kit sent out.

Results:

Environmental benefit: The total emissions per test (kit + postage) were reduced by 5.495 kgCO₂e, extrapolated across a year with 222 tests sent, this is a saving of **1219.9 kgCO₂e**.

Financial benefit: The old kits cost including postage cost £13.20, whereas the new kits cost £4.41 (3.83 + 58p per plastic container for blood tube). With a saving of £8.79 per kit, we will save **£1951.38** per year. With the old kits, we were charged for every kit ordered. With the new kits, we are only charged for blood samples returned, and the envelopes are free, so we won't be charged for tests that are not completed for patient care.

Social sustainability: Our telephone interviews with patients showed that the new postage kits are easier to use and more convenient to return. Some patients stated they had to pay for the blue lock boxes to be sent a couple of times out of their own money and described them as 'expensive and seemed unnecessary'. While some patients had no preference for either kit, no negative feedback was received for the new kits.

"I used to use the old lock boxes to send bloods to Manchester. I have to say I really didn't trust them, they were very bulky but also felt like they wouldn't close properly so was worried the samples might fall out easily. They weren't very easy to close."

"From my house it was 2 miles there 2 miles back so 4 miles in total to post the lock boxes. I also found it quite annoying as I work full time and struggled getting to the post office in time to post them before they closed."

"I am partially sighted so find it quite fiddly / tricky putting the bloods in here and getting myself to and from the post office."

"I used to travel about ½ a mile to post office so wasn't far but inconvenient with the opening times."

For staff, the old lock boxes were described as "fiddly and bulky" so organising and sending out the new tests via internal post has been easier and faster for staff in the renal transplant office. Dialysis staff stated they preferred the new smaller postage boxes as the blue boxes were 'difficult to close properly'.

Clinical and health outcomes:

The patient health outcomes have not differed or been negatively impacted by using the new postal kits. Some patients have stated rather than driving in a car or using public transport to get their lock boxes to the post office they now walk to their nearest post box instead which potentially may have some indirect benefit of increased physical activity. There is a potential positive impact of the added convenience to patients leading to faster posting and analysis of blood testing, in turn leading to faster results and treatment as required.

Barriers encountered:

Specific patient data was difficult to obtain due to a rapidly changing patient group, we therefore have needed to rely on estimations as there is no fixed number of patients for whom this change can be implemented.

We continued to manage full clinical duties during the competition which was challenging considering low staffing levels within the department and sickness within the team. We were grateful for support and expertise of other staff such as the waste reduction department and have made contacts which will be useful for widening the scope of this project or implementing any future changes.

Steps taken to ensure lasting change and conclusion:

We have demonstrated positive impacts across the triple bottom line of sustainable value. Our financial savings have been recognised and celebrated by Paul Jackson, the Abdominal Medicine and Surgery Clinical Service Unit (AMS) project manager for sustainability and transformation and the wider AMS management team. The project took place within the renal recipient team, however we will look at implementing the change in blood kits to aspects of live donor service delivery to expand the effect of the change.

The team in Manchester with whom we liaise for the patients listed for simultaneous pancreas kidney transplants have already expressed an interest in this new postage system. We are continuing to collaborate with the Manchester renal transplant coordinators. We have shared our data and new postal kit products to support the team in rolling out the same service for their patients. Manchester sends an average of 20 SafeLock blood tests per month. If these 240 tests annually were changed, an additional 1,318.80 kgCO₂e and £2,109.60 would be saved.

We have regular meetings with other hospitals in the region including Bradford, Hull and York, and plan to present findings here to encourage change to other regional teams. There may be opportunities to share our outcomes further at national network meetings associated with NHS Blood and Transplant or the British Transplant Society to potentially scale our changes to many of the additional 21 transplant centres in the UK.

This project also has the potential to be applied to other outpatient departments requiring regular monitoring of patient bloods. This may be other outpatient departments within LTHT, or perhaps other renal transplant departments nationally.

References

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