PATHOLOGY SAMPLE TRANSPORT, PATHOLOGY TEAM

TEAM MEMBERS:

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Background:

There are four blood science laboratories in Hywel Dda University Health Board (HDUHB); Bronglais, Withybush, Glangwili and Prince Phillip hospitals. Each of these laboratories process most of the samples sent to them, however, there are some specialised or rarer tests that require analysis elsewhere. Some of these will be done within the health board, but at another hospital site, while others will be sent to specialist centres for analysis.

The routine transport between hospital sites for these tests produces 52.4 tonnes of carbon emissions, with 119,500 miles travelled per year.

There are some cases when samples are sent via an urgent form of transport (taxi) as they cannot wait for the next day routine collection. These ad-hoc requests are for transport of pathology samples and blood products between hospital in Hywel Dda University Health Board, as well as to locations in other health boards. The secondary locations, outside of the health board, are the specialist centres for testing.

A review was conducted of the number of samples transported outside of routine health board transport between hospital sites.

Specific Aims:

To reduce ad-hoc transport by 5-10% in a 12-month period. This will save cost and reduce the environmental impact of unnecessary transport.

Methods:

An audit was conducted of historic ad-hoc transport (taxi service) requests between Oct 21- Sep 22. In this 12-month period, 1,261 samples or products were transported over 93,555 miles, at a cost of £103,673.

To try and reduce this several interventions were planned.

Phase 1: Unnecessary urgent processing and team education

It was considered that not all tests sent via ad hoc 'urgent' transport would be urgent for clinical patient care. Use of ad-hoc urgent transport was discussed with some of the main authorisers of the transport within the team. This educational intervention highlighted potential waste in terms of transport and cost and encouraged all to think about why ad-hoc transport was used and if it was always needed. Further educational discussions are planned to embed this into our system.

Phase 2: Review of in-house versus external testing

A review from our laboratory information system on samples sent to external specialist centres is on-going exploring if any tests can be;

a) sent to different specialist centres where transport is more readily available between the HB and specialist site. There is a myriad of transport being used in the HB for a range of services. There may be regular transport routes that our service can utilise/share instead of using Taxis.
b) taken in-house and analysed in HB. This would mean less samples having to be transported outside of the health board however may require some initial investment costs for equipment required for specific tests.

Measurement:

Patient outcomes:

There wasn't always detail on why or what was sent other than "sample" so further auditing about true clinical need for urgent request was difficult.

Environmental and Economic sustainability:

Data was collected via the HB logistics team for the period Oct 21-Sept 22. Data included authoriser and transport journey, including mileage and cost (£). The emissions factor for miles driven in a taxi was taken from the BEIS database[1].

We re-audited our travel distance and cost following phase 1 and will continue to re-audit over the coming 12 months as we continue with phase 2 of the project.

Social sustainability:

Feedback from staff was obtained via informal conversations and during meetings.

Results:

At present, there is insufficient information to grade the urgency of each ad hoc request, so gauging accurately what journeys are considered non-urgent and therefore avoidable is challenging. We have made an assumption that a 5-10% reduction in the next 12 months is reasonable and achievable when calculating our CO2e and financial savings.

Patient outcomes:

This wasn't measured during this project as any urgent samples will continue to be transported due to clinical need. There will therefore be no impact on patients.

Environmental sustainability:

Table 1 shows a summary of our current transport emissions.

21/22 Total for pathology transportation		
	Miles per year	**kgCO2e per year**
Daily runs	119,500	52,373
Ad hoc	93,555	39,012
Total	**213,055**	**91,385**

Phase 1 has been implemented with re-auditing in November 2022 showing no relative reduction in transport. However, we expect it will take more time for education and behaviour change to take place and be reflected in our data. We are also yet to implement findings from phase 2 of our project.

Over the next 12 months, a 5-10% reduction in as hoc travel and associated emissions gives a potential annual saving of **1,950 - 3,901 kg CO2e per year** (4,677.7 - 9,355.5 miles driven).

Economic sustainability:

Calculating savings at this point has proved problematic due to several variables involved including insufficient information on the urgency of each ad hoc request and the cost of different tests. However, assuming a 5-10% reduction is achievable, potential savings of up to **~£5,183 - £10,367 per year** from reduced Taxi orders is possible.

Social sustainability:

We have known that there is potential waste in the system, but pathology management haven't formally reviewed it prior to this project. Colleagues have reported:

> *"This project has allowed us to really look at the process and see the potential savings"*
>
> *"Potential wasteful journeys that add nothing to the patient pathway can now start to be removed"*

Colleagues have also highlighted that reducing unnecessary processing for 'urgent' transport for tests that are not clinically urgent will save staff time:

> *"Reducing ad-hoc transport will also reduce pressure on staff, as the amount of urgent send away tests decrease this will allow them focus on more time sensitive tasks"*

Discussion:

Whilst we haven't been able to show any reduction in transport runs over the 10-week project period, this is almost certainly due to the short timescales to allow for the education and

behavioural interventions to take effect. Other interventions are on-going and so will take longer to reflect impact.

Another factor is the urgency of some of these samples/ blood products. Sometimes they cannot wait for a routine transport or to be sent via the mail service. The transport of these will always be ad-hoc. Therefore, when measuring transportation, we must consider the clinical urgency.

No risk to patient outcomes will come from this project as all samples are reviewed based on clinical urgency. This project seeks to highlight when samples are sent via taxi when there may be more appropriate transport options available.

There is now a planned, yearly, ad-hoc transport audit to measure the levels. The ongoing interventions planned should show continued reductions in ad-hoc transport, until only clinically urgent samples require this mode of transport.

Conclusions:

The 'end' of this project is actually the start of a longer, larger project looking at pathology sample transport in Hywel Dda University HB and beyond. This project has allowed us to scope the current system and start to target the 'waste'.

References:

BEIS database: Greenhouse gas reporting: conversion factors 2022 - GOV.UK (www.gov.uk)