

## Mobile X-Ray Pilot – NHS Orkney

### Contents of report:

The attached report outlines the final outcomes from the Mobile X-Ray trial which took place in NHS Orkney, from November 2021 – February 2022.

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## Mobile X-Ray Pilot – NHS Orkney

### Situation

Within Orkney, patients are often referred for X-Rays by their GP. The X-Ray department at Balfour Hospital will then schedule the appointment and let the patient know when it is. As X-Rays could only be completed at Balfour Hospital, patients would have to travel there, either making their own way there or using pre-arranged patient transport via SAS.

When travelling from Isles (such as Hoy, Sanday, Stronsay and Westray), patients often have to take a full day off work to be able to attend at Balfour Hospital for, what is normally a 5-10 minute appointment. The patient will also either be reimbursed their travel costs, or SAS transportation is arranged, which is a large cost to NHS Orkney.

In 2020, NHS Orkney reported that 200 appointments were sent, and they recorded a DNA rate of 73% for patients who were due to attend for an X-ray.

This pilot was introduced to try and reduce patient travel times & costs, as well as 'Did not attend' (DNA) rates within NHS Orkney.

### Background

In June 2021 FujiFilm contacted the NHS Scotland North Regional Team about a pilot that had been carried out recently in Northumbria using their XAIR portable X-ray imaging system. The pilot in Northumbria had 3 phases and the XAIR system was used in three different settings:

1. Appointment based setting at a GP Surgery & two care homes for routine imaging
2. Non-appointment GP call-out setting for care home residents in acute
3. Emergency Ambulance Response for pre-hospital imaging assessment in partnership with the North East Ambulance Service (NEAS) and Trust Emergency Department (ED)

The Northumbria pilot success metric was a 50% reduction in avoidable admissions (n=56 at June 2021) where the patient was attended by the Northumbria XRT. The pilot was unable to continue due to lack of local funding.

After this trial FujiFilm were interested in offering a free trial of their machine to the North of Scotland, to find out if this would benefit them in any way.

Discussions were held with the North Boards and both NHS Orkney and NHS Shetland requested use of the XAIR as they felt it could really benefit them.

A Mobile X-Ray working group was set up, which included representatives from both Boards and NHS Highland who were interested in the outcome of the Islands' pilot, Colin Brown, Account Manager,

FujiFilm, representation from the NHS Scotland North Regional Team and representation from the Radiation Protection Service in NHS Grampian who provide radiation safety advice to NHS Orkney and NHS Shetland.

Throughout these discussions, the following was agreed for NHS Orkney:

- The trial would run from November until mid-January.
- Four GP Surgeries (Hoy, Sanday, Stronsay and Westray) on the isles would be used for the pilot, using appointment based clinics.
- The data to be measured is DNA rates; patient travel time; and patient travel costs.
- Feedback from GPs; Radiographers; IT & patients would be gathered.

In October 2021, the Radiation Protection Service in Grampian received the equipment from FujiFilm, carried out their safety checks, developed a radiation risk assessment and user QA testing program and approved the equipment for the trial. The equipment was taken over to Orkney, where equipment training was provided to the Radiographers by Fuji.

Rooms were identified at each surgery which would be most appropriate to designate as a controlled area, ideally with at least one outside wall and minimal windows. These were initially assessed from plans and then visually inspected by the Board Radiation Protection Supervisor with advice from the Radiation Protection Adviser. Once appropriate rooms had been identified, local rules (as required under IRR17) were written covering the use of the Xair in the designated rooms. This ensured that the radiation dose to staff, other patients and members of the public was as low as reasonably practicable. In a number of the surgeries, which were in older Orcadian houses, the walls were approximately 1m thick stone.

Referral criteria were developed to ensure that no patient had their diagnosis or treatment delayed due to the trial and examinations which were felt would not be possible, given the output from the equipment, were also highlighted, for example horizontal beam hips and spinal imaging on larger patients.

Referrals were accepted up to 24hours prior to the clinic being run at the surgery to allow appropriate justification to take place and it was requested that trauma patients, requiring urgent referral, were not included as the images would not be uploaded to PACS until return to the hospital that evening as network speed was not of a level appropriate to transfer images from the surgeries.

Detector stands were taken to all surgeries and stored there, along with lead equivalent rubber aprons to ensure the Radiographers were carrying the minimum equipment with them.

Prior to the trial starting, the GPs & Radiographers were asked to complete a 'pre-trial feedback form' to provide their opinions on the trial, whether they were aware of it and whether they thought the trial would help.

Patients were asked to complete a feedback form after their appointments, which were then sent to the North Regional Team to collate.

The NHS Orkney pilot was extended slightly and finished on 4<sup>th</sup> February 2022. Although the pilot was supposed to include a surgery within Stronsay, this did not happen as the surgery did not have any patients to be seen throughout the pilot.

## Analysis

When starting the pilot, it was agreed that three main indicators would be used to determine if it was successful:

Indicator	Pre-trial	Pilot	Outcome
DNA rates	73%	0%	Achieved
Reduced Travel miles (estimate)	1599	672 (+476 radiographer miles) = 1148	Achieved
Reduced Travel costs (estimate)	£1497 (patient travel)	(£0+£447 Radiographer travel) = £447	Achieved

Overall, the NHS Orkney pilot has been considered a success, with a large reduction in the number of DNAs as well as a reduction in travel times and travel costs.

Appendix 1 shows responses received from the Radiography staff pre & post-pilot, about whether they thought the trial would be successful.

### Patient Feedback

Throughout the trial, 30 patients were seen across the 3 GP surgeries, with anonymous feedback being received from 15 of them. The feedback was mainly positive, as indicated in Appendix 2.

The feedback received shows that the patients were very happy with the pilot as it meant they did not have to travel as far for their appointments; some even commented that if they had to travel to Kirkwall, they may not have attended the appointment at all, due to having to take the day off of work.

The below questions were asked on the patient feedback forms, and we have noted some of the comments received.

***If you had to travel to Kirkwall for this appointment, please advise how long it would have taken you to travel there.***

#### Westray

'10 Hours approx, would have had to take the whole day off work.'

'Don't even know if I would be able to get to Kirkwall.'

#### Sanday

'Got to take the day off.'

'Would've taken all day, probably wouldn't have bothered coming in.'

***Based on the information you received, what were your expectations of your appointment?***

**Hoy**

'As a last-minute appointment, I didn't receive details but was extremely happy with the appointment and the fact it was on Hoy.'

'My appointment was just as explained to me.'

**Westray**

'This is hugely beneficial to people on the small islands. Much less upheaval for frailer patients. It was super.'

'I didn't expect it to be so quick.'

**Sanday**

'I hoped I could stand and not have to lie down and that's what happened! It was really easy.'

***Is there anything else you would like to add about the service you received prior to and during your appointment?***

**Hoy**

'An excellent service and a huge relief not having to travel.'

'very good - excellent being here.'

'Fantastic service – very pleased.'

**Westray**

'It was very quick, I just nipped over from work.'

'It's a lot better having clinics on the island.'

**Sanday**

'Very convenient for the Islanders! Saves taking time off work.'

'Father too frail to travel. Excellent service. Needed 2 carers to help move father & neither of us can take a full day off island as we provide critical services to community which couldn't happen if we had to be away.'

'It was very good, and folk were lovely.'

### **Patient story**

There was one follow up patient during the trial, who was initially identified from their imaging as requiring treatment. The patient arrived at their first appointment with 2 carers and was not able to walk unaided. Both carers had essential jobs in the community that would have had to stop if they were to travel to the hospital.

At their follow up appointment, while the patient was driven to the surgery, they were able to come in to the clinic unaided and upon being imaged it was found that the treatment had been successful.

### **Did Not Attend (DNA) rates**

In 2020, the DNA rate for the year was 73%. This was estimated to be approximately 37 people who did not attend for their appointment between November and January.

Throughout the trial, all patients offered an x-ray at their GP surgery have attended the appointment, so the DNA rate is 0.

Although all patients did attend their appointment, we know of one patient who almost missed theirs. This was because they thought that the equipment would be brought in a van, which they did not see come off the ferry in the morning, so they assumed their appointment was cancelled. Luckily, the clinicians were able to phone the patient and confirm they were holding the clinic that day and, as the surgery was not far from them, they were still able to attend the clinic for their appointment.

From this, we know that when providing information to the patients, they should be made aware (prior to their appointment) that the equipment is small, and the clinicians will travel in a car. We also know that if a patient forgets or misplaces their appointment time, they could still attend if clinicians are able to contact them.

### **Travel times**

The patients were asked to indicate approximately how long it took them to travel for their appointment and how long it could have taken them to travel to Kirkwall. Appendix 2 shows the approximate timings for each Isle and the miles travelled & miles saved. In total, across the 3 isles, 451 less miles were travelled throughout the trial. This figure is based on all 30 patients that attended their appointment at their GP surgery travelling to Kirkwall, and excluded mileage for one return journey for the radiographer.

### **Travel costs**

When travelling to their GP surgeries, due to the distance, patients are not eligible to claim back travel expenses for travel.

When travelling to Kirkwall, patients had the option of claiming back expenses – either their mileage and ferry costs or public transport costs. Appendix 3 outlines these approximate costs.

If patients travelled to Kirkwall via their own car, they could claim back the cost of the ferry plus £0.45 per mile travelled. If all patients seen in the trial travelled by car, the total cost saved would be £1,497.06.

If all patients travelled to Kirkwall via public transport, they could claim back the costs of the travel (bus ticket, ferry ticket). If all patients seen in the trial would have travelled on public transport to get to their appointment in Kirkwall, the total cost saved would be £729.

## Outcome

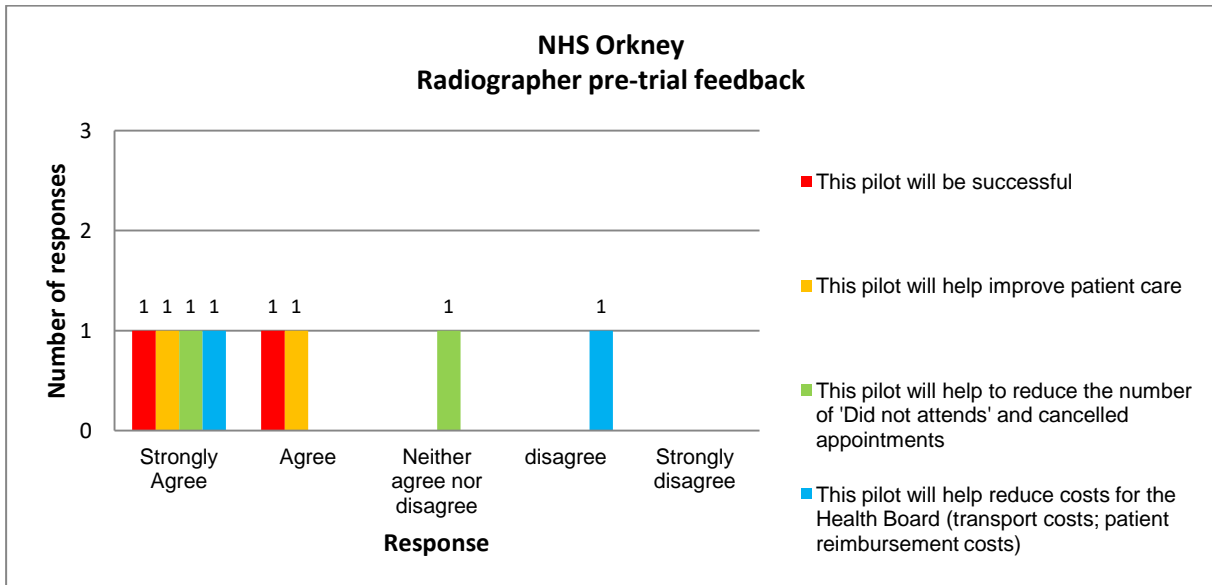
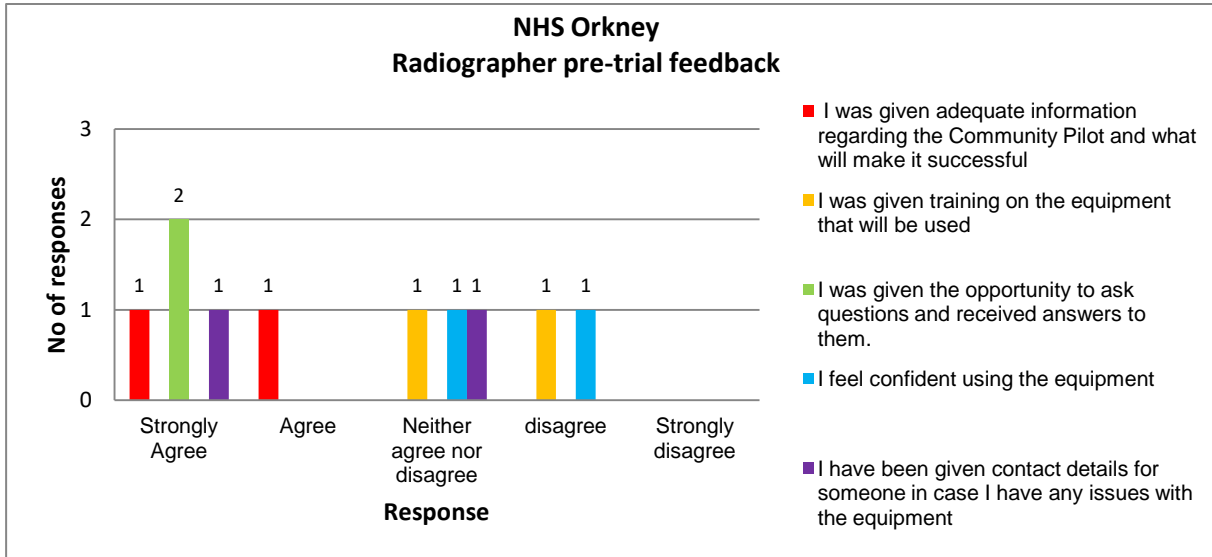
This pilot has been considered a success, based on the reduction on travel costs and travel time, and NHS Orkney are currently looking at options for purchasing their own XAIR machine, so that the Isles clinics can continue.

NHS Shetland are due to start their own pilot shortly, which they hope will also be successful.

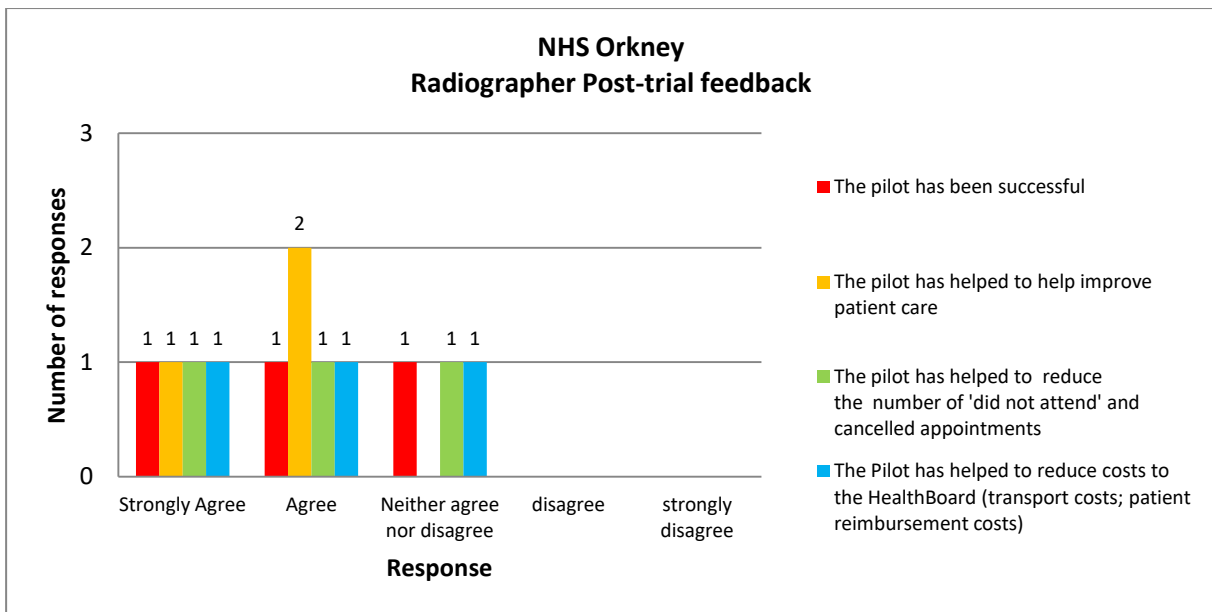
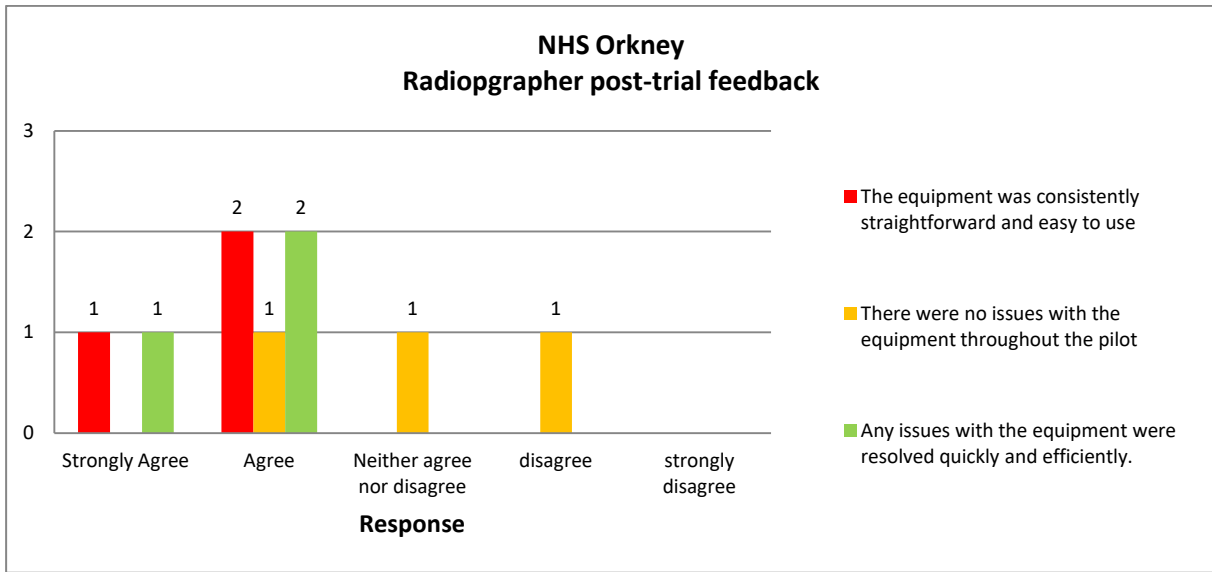
The NHS Scotland North Regional Team continues to liaise with Boards in the North, to decide whether a trial of the XAIR would be beneficial for them. Currently, NHS Highland are interested in a trial for their more remote areas.

NHS Grampian have also expressed an interest, although this would be in a care home setting, as opposed to GP surgery clinics.

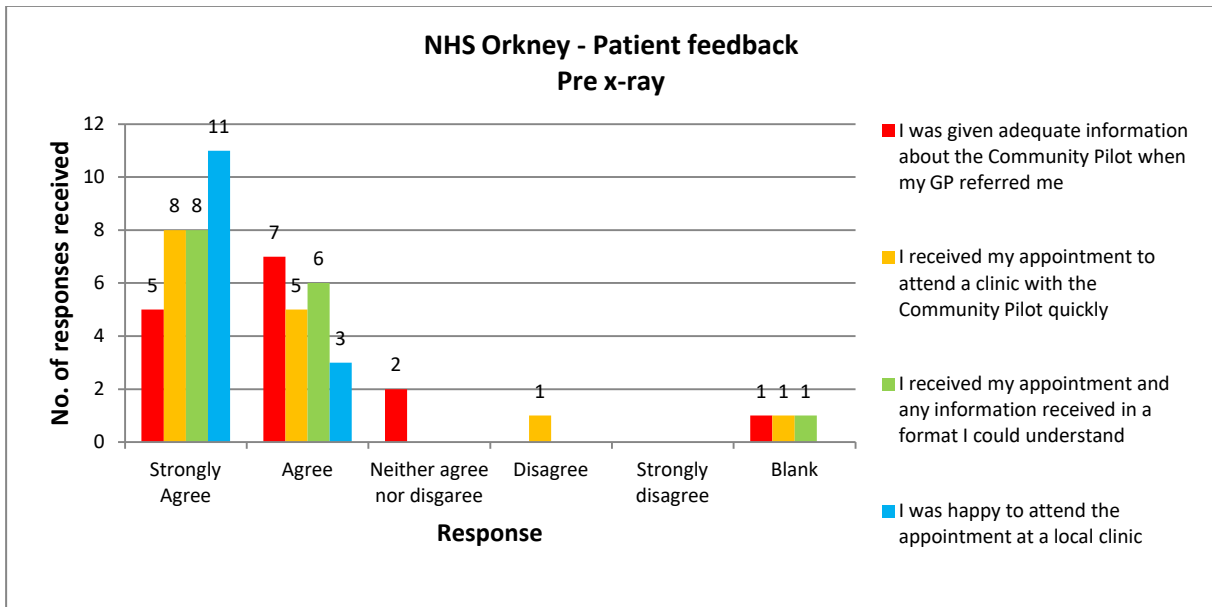
**Appendix 1**



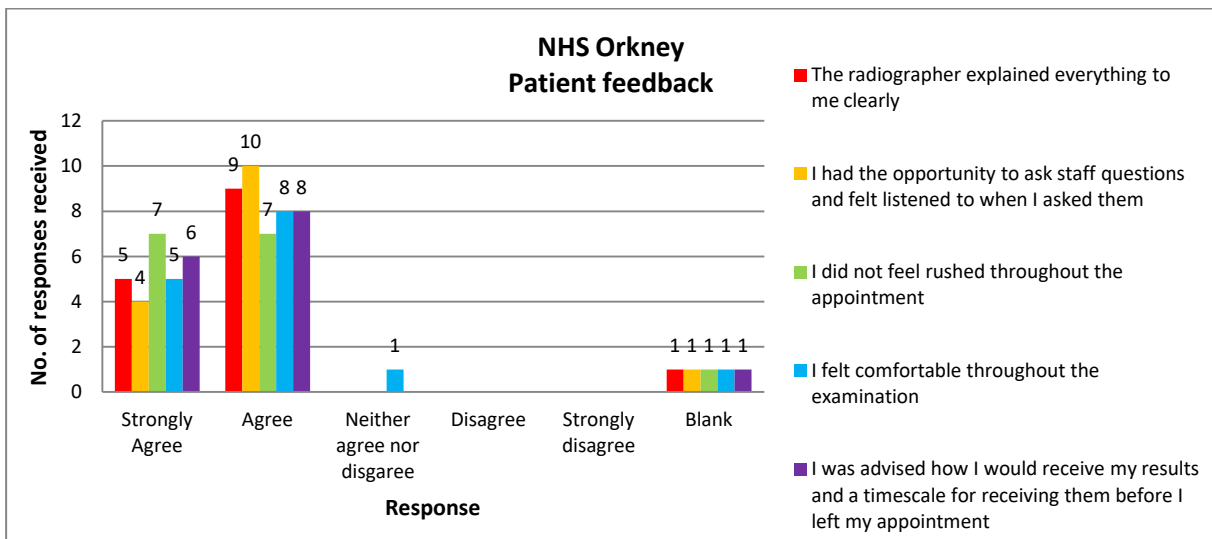




## Appendix 2



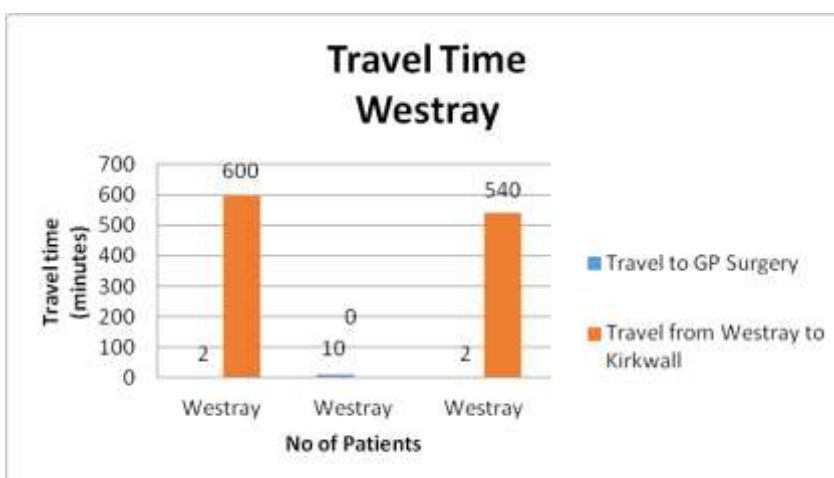
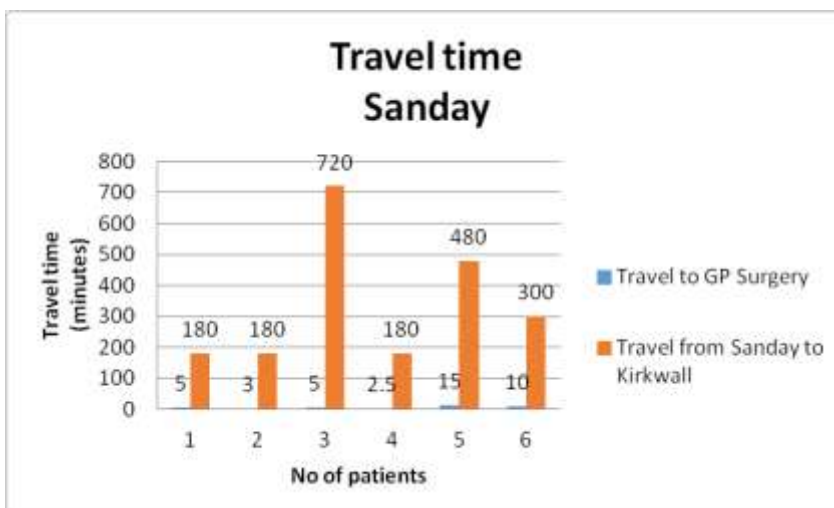
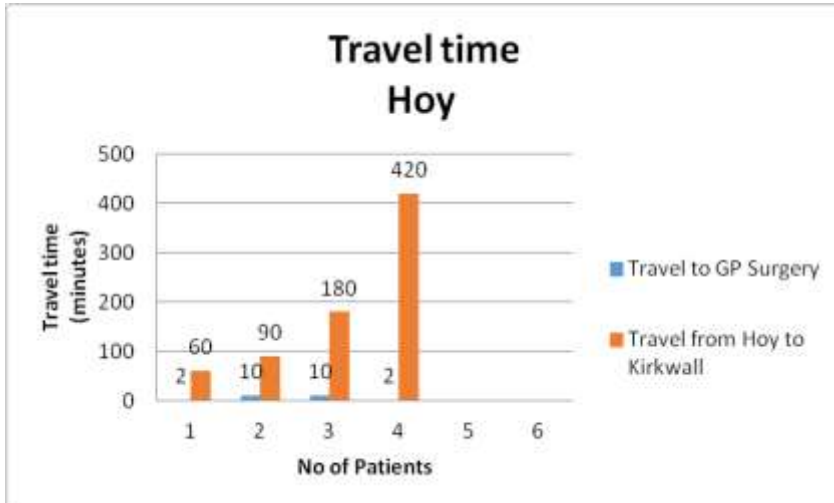
\*These figures are based on patient feedback forms, completed by 15 people



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### Appendix 3

#### Travel times (as advised by patients)



\*Westray – the 2<sup>nd</sup> patient advised they probably would not travel to Kirkwall for the appointment, so did not input a travel time.

## Miles saved

Island	Miles to surgery (return)	Miles to Kirkwall (return)	Miles saved (travelling to Surgery instead of Kirkwall)	Number of patients seen	Minus Radiographer miles (4 x return journey/1 for Westray)	Total miles saved
Hoy	26	47.2	21.2	12	47.2	65.6
Sanday	20	57.8	37.8	14	57.8	298
Westray	20	55.8	35.8	4	55.8	87.4
				<b>30</b>		<b>451</b>

#### Appendix 4

<b>Travelling by Car</b>							
<b>Island</b>	<b>Miles to Kirkwall (return)</b>	<b>Cost patient can claim per mile</b>	<b>Mileage cost</b>	<b>Ferry cost</b>	<b>Total travel costs (per patient)</b>	<b>No of patients seen</b>	<b>Total costs saved</b>
Hoy	47.2	£0.45	£21.24	£25.92	£47.16	12	£565.92
Sanday	57.8	£0.45	£26.01	£25.92	£51.93	14	£727.02
Westray	55.8	£0.45	£25.11	£25.92	£51.03	4	£204.12
						<b>30</b>	<b>£1,497.06</b>

<b>Travelling by Public Transport</b>					
<b>Island</b>	<b>Bus cost(s)</b>	<b>Ferry cost (foot passenger)</b>	<b>Total travel costs (per patient)</b>	<b>No of patients seen</b>	<b>Total costs saved</b>
Hoy	£14.30	£10.98	£25.28	12	£303.36
Sanday	£13.30	£10.98	£24.28	14	£339.92
Westray	£10.45	£10.98	£21.43	4	£85.72
				<b>30</b>	<b>£729</b>