SUSQI PROJECT REPORT

Project Title: Introducing a Patient Group Directive (PGD) for micro-enema use in the radiotherapy outpatient department

Start date of Project: September 2024
Date of Report: January 2025

Team Members:

- Sian Griffiths, Consultant Radiographer Urology Specialist
- Hazel Clarke, Macmillan Radiotherapy Late Effects Radiographer

Background:

A full assessment and understanding of the carbon footprint of radiotherapy services is a project that would take a vast amount of time and requires a large amount of data to be collected by many radiotherapy departments. The linear accelerator machines use a large amount of energy to run and leak sulphur hexafluoride gas but are vital in the delivery of radiotherapy - a treatment that is used in up to 50% of cancer patients at some point in their treatment pathway. This is alongside the fact that many of the patients receiving radiotherapy will travel to the hospital on a daily basis for their treatment, sometimes for up to 7 weeks. As radiographers, we are aware that we cannot change our machines and the way they work but there may be small changes that could be implemented to make the radiotherapy service at the RUH more sustainable, reducing the carbon footprint and our impact, both financially and environmentally.

In the year 2023-24, 273 patients received radical radiotherapy for bladder, prostate or gynecological cancers. The majority of these patients will be required to complete bowel preparation prior to radiotherapy by using a daily micro-enema. This process consists of a doctor or non-medical prescriber generating a prescription for each individual patient remotely on the computer system prior to the patient attending the hospital. As per guidance for prescribing, this would involve a telephone call to the patient to take a full medical history and assessment before then completing the prescription (Royal Pharmaceutical Society, 2021). At the radiotherapy planning scan, pre-treatment radiographers will give the patient 2 single micro-enemas (1 to be used for their planning scan and 1 to be used on the first day of treatment). When the patient starts their radiotherapy treatment, they will be sent to the outpatients' pharmacy to collect more

micro-enemas which are dispensed in boxes of 12. Each patient will receive 2 boxes of enemas as standard. If a patient forgets to bring their micro-enema to the department for treatment, a further box of 12 micro-enemas will be dispensed to the patient. On average, each patient will have 20 treatments and so will require 21 enemas (1 for their planning scan and then one for each treatment) and so we realised there was an issue with over-prescribing and over-supply of medication.

The team proposed the introduction of a Patient Group Directive (PGD) for the administration of micro-enemas for those patients that would require them as part of their radiotherapy treatment. This would enable patients to be dispensed the exact number of micro-enemas needed for their treatment course, would reduce the workload of prescribers and the outpatient's pharmacy and reduce the amount of time (although not visits) that the patient would need to spend in the hospital at each appointment. We also think this would represent a safer practice for prescribing and administering micro-enemas as the professional doing this would be with the patient at the point of deciding a micro-enema is clinically appropriate rather than this process occurring remotely.

We made contact with the diagnostic radiography department at the Trust and also other radiotherapy departments across the UK and found that a PGD was a common method for supply of micro-enemas to patients. This gave us the confidence to know that what we were suggesting could be a reasonable solution to the problem we had identified.

The team consisted of Sian Griffiths and Hazel Clarke. They are both therapeutic radiographers and non-medical prescribers within the radiotherapy department, and as a result, were well placed to lead this project. They have a good knowledge of radiotherapy treatment techniques but also the challenges that are associated with prescribing and dispensing medications to this group of patients.

Specific Aims:

Primary Aim:

1. To reduce the over-prescribing and supply of micro-enemas to pelvic radiotherapy patients and reduce medication wastage by 30%, by June 2025.

Secondary Aims:

1. Improve patient experience by reducing the amount of time spent waiting to collect prescriptions.
2. Reduce financial impact of micro-enemas by reducing medication wastage.
3. Reduce the workload of outpatient pharmacy.
4. Reduce the workload of prescribers in radiotherapy who would not need to complete individual prescriptions for each patient.

Methods:

Studying the system:

The team reviewed the current process of prescribing, ordering and collection for patients and mapped the environmental, social and financial resource use and created a process map to identify areas of high resource use and activity (Appendix 1).

The team reviewed how much staff time was taken up by actioning prescriptions, patient time taken up by attending the outpatients pharmacy and cost and carbon footprint of the waste generated from the current process. Please refer to the process map in Appendix 1 for time data and Table 1 in the 'Environmental sustainability' section below for information on carbon footprinting data of micro-enema use.

To gain information about the numbers of enemas being overprescribed (Appendix 2), an audit of the prescribing activity for micro-enemas over 3 months, July - September 2024 was undertaken. This captured data about the patient's treatment site, prescriber, method of prescribing, the total number of enemas prescribed, and the total number of enemas required. This allowed the team to calculate the number of enemas over-prescribed. Over a 3 month period, 61 patients were required to use micro-enemas prior to their radiotherapy. A total of 1723 micro-enemas were prescribed which equated to an excess of 505 enemas when compared with the number required for treatment. Over a year, it is estimated that this would lead to 2020 micro-enemas being over-prescribed and supplied by the Trust.

A questionnaire was developed with assistance from the Patient Experience Team at the RUH and administered to patients who had experienced the current process to capture their views (see Appendix 3 and 4). This collected data from 12 patients who finished radiotherapy with bowel preparation in the month of November 2024.

Proposed change

The team attempted to introduce a PGD to dispense micro-enemas in the radiotherapy department.

The team produced another process map to show the new proposed pathway for micro-enema supply and how this reduced resource use and activity (see Appendix 5).

It was anticipated that initially this would require some time and other resources to set up the pathway but once staff training had been completed and the process was implemented fully, it would save patient and staff time (from up to 55 minutes to 15 minutes for the entire process) which the team hoped in turn would also improve patient satisfaction and experience. In addition, as only the number of required enemas would be given to the patient, there should be no waste enemas at the end of their treatment, offering both financial and environmental benefit.

Measurement:

***Patient outcomes*:**

It was estimated that there would be a 10-30 minute reduction in patient time spent at the hospital as their micro-enemas would be supplied to them in their routine appointment rather than at a visit to the outpatients pharmacy afterwards. In addition, there are risks associated with remote prescribing (Royal Pharmaceutical Society, 2021) that would be mitigated by the fact that the patient would be supplied with their micro-enemas after a face to face assessment and full medical history being taken. This represents safer prescribing practice.

After full implementation of the changes, the project team would repeat the patient questionnaire to see if there is any evidence of improved patient satisfaction and experience.

***Population outcomes*:**

A reduction in carbon emissions would have a positive impact on the environment and general population. Environmentally this will improve air quality, reduce weather extremes, reduce sea levels and reduce the probability of the most damaging effects of climate change on natural systems. This, in turn, will result in direct and immediate benefits to the health of the general population with fewer respiratory illnesses and improving health outcomes (Hartley & Turnock, 2021).

It was also predicted that by reducing staff workload and time in the pharmacy outpatients, there would be a benefit to the wider population of patients within the hospital. By reducing the amount of micro-enemas that need to be processed and dispensed in the outpatient pharmacy, their time and resources can be spent on other prescribing tasks. This reduces the pressure on the outpatient pharmacy teams and would reduce the amount of time that other patients are waiting at the pharmacy for their prescription. The team would survey pharmacy staff to find out their views on the impact of the PGD introduction.

By eliminating the need for non-medical prescribers or the doctors to call each individual patient, this means that these staff can focus their time on higher value work within the Trust. This has the potential to reduce waiting lists within the Trust which is beneficial for patients waiting to be seen in the clinic. It is estimated that eliminating prescription requests for the doctors and non-medical prescribers would result in a time saving of approximately 15 minutes per patient. It is estimated that there are roughly 244 patients a year that use micro-enemas and so this equates to 61 hours per year that would be saved by not needing to perform individual enema prescriptions. This is the equivalent of 91.5 ‘new patient’ slots.

***Environmental sustainability*:**

An Environmentally Extended Input Output Analysis (EEIOA) was undertaken to estimate the GHG emissions associated with an individual Enema. Cost for an individual enema was provided and converted into GHG emissions using the pharmaceuticals conversion factor taken from the 2021 UK Government database by SIC code.

The GHG emissions associated with a phone call was taken from the GreenerNHS and adjusted to 15 minutes. GHG emissions associated with computer usage was estimated based on average consumption of a standard computer (150W) and multiplied by the time spent per activity. Electricity consumption was converted into GHG emissions using the factor for the UK electricity grid taken from the 2024 UK Government Greenhouse Gas Conversion Factors database.

Table 1 details the GHG emissions associated with an Enema, a phone call (15 mins) and computer use (5 minutes).

	Carbon footprint (kgCO2e)
1 Enema	0.39
Box of 12 Enema's	4.70
Phone call (15 mins)	0.05
Computer use (5 minutes)	0.0034

***Economic sustainability*:**

There will be a time and therefore financial impact for initially training staff in the use of the PGD although it is not expected that this will be an ongoing cost for the process once it has been fully implemented.

The unit cost of the micro-enemas is taken from the British National Formulary (BNF) (2024). The introduction of a micro-enema PGD should represent a financial saving as with the current process, there is overprescribing of medications and then there is an associated disposal cost with this.

***Social sustainability*:**

Health services can influence the social circumstances of patients, carers, dependents, staff, local and distant communities (e.g., people working in the supply chain).

Implementing a micro-enema PGD aims to reduce the amount of time that patients are spending in the hospital during their visit between 10 and 30 minutes, although one patient surveyed needed to make additional visits to the outpatient pharmacy after their initial visit (Appendix 4). Another patient also attended the pharmacy to collect their prescription but came away without their medication because the prescription hadn't been authorised - 'on day 1, my prescription

wasn’t authorised and so wasn't ready’. Reducing the amount of time being needed to spend in the hospital will reduce the impact on time lost from education or employment and also reduce the impact on their income or employment.

Results:

Unfortunatel, it wasn’t possible to fully implement this change within the timescales of the Green Team competition due to staffing pressures and clinical workload in the pharmacy department and to allow the required clinical governance to be in place for safety.

This became apparent halfway through the project pathway and so the team tried to implement an interim process whereby the micro-enemas were dispensed from the radiotherapy department but from the initial Millennium computer system prescription (Appendix 6). This would have removed part of the process and demonstrated a reduction in the pathway. The team took advice from the CT pre-treatment team, supply chain and pharmacy about how the radiotherapy stock of enemas could be increased to facilitate this. Unfortunately, due to the clinical workload demands of pharmacy staff and staffing pressures, approval to implement this change was not gained in the timescale of the project.

The team decided that their time and effort would be better concentrated on implementing the full and initial aims of the project, even though this would not be achieved within the original timescale of the Green Teams project.

As a result, most of the outcome results below are an estimation of the expected benefit.

***Patient outcomes*:**

As detailed in the patient survey (Appendix 4), it was estimated that patients spent 10-30 minutes waiting at the outpatient pharmacy for their prescription on the first day of the treatment. Introducing a micro-enema PGD would mean that patients would receive their prescription within their original appointment in the radiotherapy department, therefore reducing the amount of time that they need to spend in the department.

In addition, the current process does increase risks associated with prescribing as this is currently done remotely. Introducing a PGD would mean that the patient would have a full medical history by the person dispensing the enema and so they can ensure that this is appropriate and safe for the patient to have. This represents safer medication management and prescribing practice for the patient to reduce the potential for harm.

After full implementation of the changes, the project team would repeat the initial patient questionnaire to see if there is any evidence of improved patient satisfaction and experience and reduction in waiting times for prescriptions (the aim being a reduction in 10-30 minutes for patients).

***Population outcomes*:**

A reduction in carbon emissions would have a positive impact on the environment and general population. Environmentally this will improve air quality, reduce weather extremes, reduce sea levels and reduce the probability of the most damaging effects of climate change on natural systems. This, in turn, will result in direct and immediate benefits to the health of the general population with fewer respiratory illnesses and improving health outcomes (Hartley & Turnock, 2021).

It was also predicted that by reducing staff workload and time in the pharmacy outpatients, there would be a benefit to the wider population of patients within the hospital. By reducing the amount of micro-enemas that need to be processed and dispensed in the outpatient pharmacy, their time and resources can be spent on other prescribing tasks. This reduces the pressure on the outpatient pharmacy teams and would reduce the amount of time that other patients are waiting at the pharmacy for their prescription. After full implementation of the PGD, pharmacy staff would be surveyed to find out their opinion of the impact of the change on their workload and work processes.

By eliminating the need for non-medical prescribers or the doctors to call each individual patient, this means that these staff can focus their time on higher value work within the Trust. This has the potential to reduce waiting lists within the Trust which is beneficial for patients waiting to be seen in the clinic. It is estimated that eliminating prescription requests for the doctors and non-medical prescribers would result in a time saving of approximately 15 minutes per patient. It is estimated that there are roughly 244 patients a year that use micro-enemas and so this equates to 61 hours per year that would be saved by not needing to perform individual enema prescriptions. This is the equivalent of 91.5 ‘new patient’ slots.

***Environmental sustainability*:**

It is estimated that there are approximately 2020 enemas oversupplied to patients each year in radiotherapy (Appendix 2). The carbon footprint of an individual enema is calculated as 0.39 kgCO2e. Over 1 year, this would equate to **787.8 kgCO2e** which would be saved as a result of preventing the overprescribing and supply of the enemas.

It is estimated that there are approximately 244 patients in radiotherapy that use micro-enemas each year. There would be a reduction in telephone and computer use as the enemas would be dispensed directly to the patient within the appointment rather than prescribed remotely ahead of the appointment. A 10 minute telephone call has a carbon footprint of 0.05 kgCO2e which over 244 patients equates to 12.2 kgCO2e each year. A 5 minute use of the computer has a carbon footprint of 0.0034 kgCO2e which over 244 patients equates to 0.8296 kgCO2e.

It is estimated that the introduction of a micro-enema PGD will result in a reduction in the carbon footprint of **800.83 kgCO2e** each year. This is the equivalent of a petrol car driving 157.7km (CO2 everything, n.d.).

***Economic sustainability*:**

It is estimated that there are approximately 2020 enemas oversupplied to patients each year in radiotherapy (Appendix 2). The cost unit per enema taken from the BNF (2024) was £0.67. By reducing the amount of enemas prescribed each year through the PGD by 2020 enemas, this would result in an estimated cost saving of **£1353.40** each year. This does not take into account the waste disposal costs associated with the overprescribed enemas as patients sometimes bring them back into the hospital for disposal and sometimes dispose of them at home but is also an important point to consider.

It is estimated that eliminating prescription requests for the doctors and non-medical prescribers would result in a time saving of approximately 15 minutes per patient. It is estimated that there are roughly 244 patients a year that use micro-enemas and so this equates to 61 hours per year that would be saved by not needing to perform individual enema prescriptions. This is the equivalent of 91.5 'new patient' slots. Currently the work carried out by the prescribers is not captured as activity and so there is a financial loss to the Trust as a result. 'New patient' slots come with a higher tariff and so by freeing up professionals' time to see more new patients as they wont needing to be doing so many enema prescriptions, this could actually prove a source of additional income for the Trust as it can charge a tariff for the additional new patient slots that would be available.

There will be an investment of staff time for training initially which also has a financial implication for the Trust but once staff are trained, this would not be an ongoing cost and it is felt that this will be offset by the financial savings of the other activities.

***Social sustainability*:**

Implementing a micro-enema PGD aims to reduce the amount of time that patients are spending in the hospital during their visit. It would be important to repeat the patient survey once the PGD has been fully implemented to fully assess the impact of the change. However, it is estimated that patient time spent in the hospital will decrease by 10-30 minutes. It would also be important to assess whether the change has identified any positive impact on their satisfaction and experience whilst attending the hospital. Reducing the amount of time being needed to spend in the hospital will reduce the impact on time lost from education or employment and also reduce the impact on their income or employment.

Discussion:

In summary, in the year 2023-24, in the radiotherapy department at the RUH 244 patients received treatment for bladder, prostate or gynaecological cancers. The majority of these patients will be required to complete bowel preparation prior to their treatment by using a micro-enema daily. The team identified that the current pathway for prescribing of micro-enemas could be improved as there appeared to be an over-prescribing and over-supply of, on average, 2020 micro-enemas each financial year.

The team proposed the introduction of a micro-enema PGD into the radiotherapy department. This project aimed to reduce the over-prescribing and supply of micro-enemas to pelvis radiotherapy patients and therefore reduce medication wastage by 30% by June 2025. Secondary aims of the project included to improve patient experience by reducing the amount of time spent collecting prescriptions, reducing the financial impact of micro-enemas by reducing wastage, reducing the workload of the outpatient pharmacy and reducing the workload for prescribers within the radiotherapy department. All of this in turn will also help to reduce the carbon footprint of prescribing micro-enemas within radiotherapy, bringing about a positive impact on the environment.

The team reviewed how much staff time was taken up by actioning prescriptions, patient time taken up by attending pharmacy, pharmacy time taken to dispense, and cost and carbon footprint of the waste generated from the current process. A questionnaire was also administered to patients who had experienced the current process to capture their views.

The team investigated how a PGD could be introduced, and a draft protocol was put forward after identification of the relevant stakeholders in the pharmacy department. Unfortunately, due to clinical demands and staffing pressure in pharmacy the approval required for safe implementation of the PGD was not possible within the timescales of the Green Team project. Work by the project team has continued and it is anticipated that the changes will be fully implemented within 6 months in June 2025.

The carbon footprint of radiotherapy services is large. This is due to the design and operating of the radiotherapy machines and the techniques used whereby patients have to attend the department on daily visits for up to 7 weeks. It is not possible to make changes to the machines and the way in which they work but small changes could be implemented within the radiotherapy service to make it more sustainable for the future, reducing the carbon footprint and impact, both financially and environmentally.

As far as the team are aware, this is the first work completed investigating and examining the carbon footprint of micro-enema use within the radiotherapy department. Once the changes have been fully implemented and the impact is fully known, the team will look at presenting these findings at a non-medical prescribing conference and look for publication within a relevant scientific journal. This will encourage other radiotherapy departments to look at their processes and hopefully replicate the changes, so the positive impacts can span a wider UK network.

Conclusions:

In conclusion, although the project has not been fully implemented, the benefits of identifying ways to reduce the carbon footprint of radiotherapy services have been explored. The team will continue to work and develop the project plan with the aim of fully implementing the PGD into working practice by June 2025.

The team leaders felt frustrated by the lack of movement and development with the project at times. They tried to implement interim measures to bring about some of the changes proposed. This demonstrated resilience and a determination to continue with the project. Unfortunately the interim proposed changes were also unsuccessful. This is obviously disappointing for the project leads but was something that was out of their control as they were relying on the approval of other professionals who were important in the changes needed to be implemented but were not directly invested in the project itself. The team leaders knew who their stakeholders were and identified and made contact with them early on in the process but next time, would try different communication strategies to get them more engaged within the project to ensure future success.

Dissemination of the project and findings at conferences and a scientific journal will encourage other radiotherapy departments to look at their processes and hopefully replicate the changes, so the positive impacts can span a wider UK network. The results could also feed into a larger scale project of looking at the carbon footprinting of the whole radiotherapy service in the future.

References and Resources

British National Formulary (2024) *British National Formulary (BNF).* [Online]. Available from: BNF (British National Formulary) | NICE

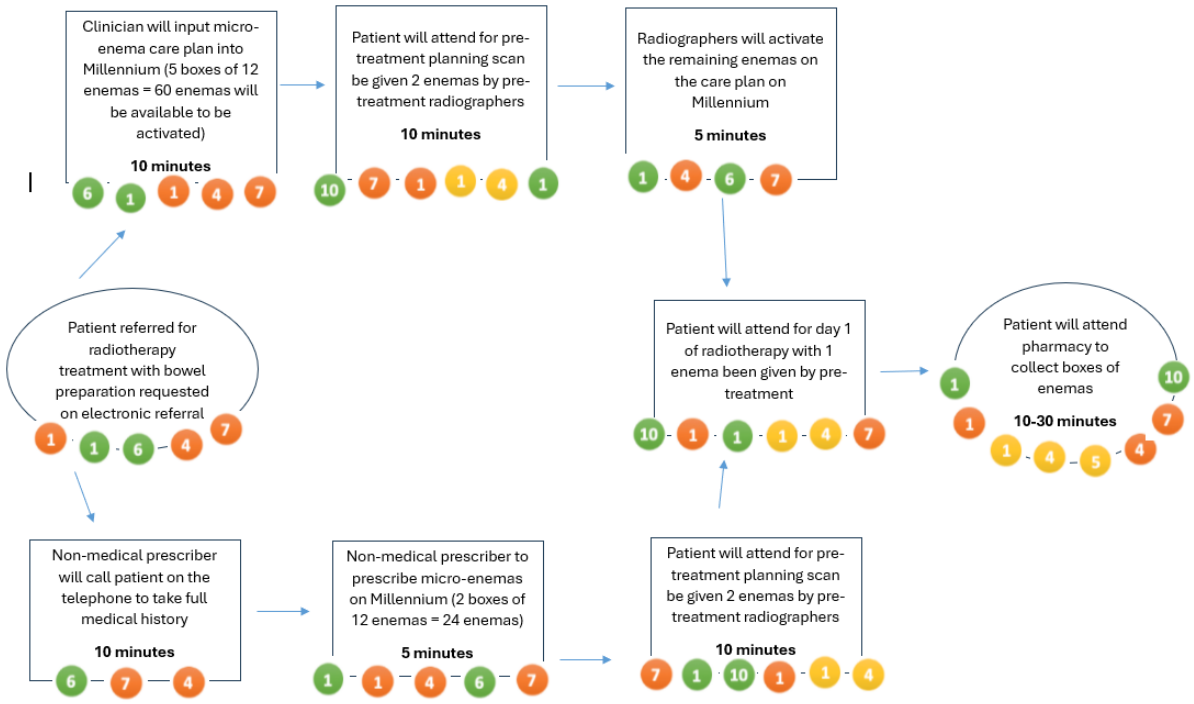
CO2 Everything (n.d.) *How we calculate equivalent kilometers* [Online]. Available at: How we calculate Km of Driving | CO2 Everything

Hartley, A and Turnock, S. (2021) What are the health benefits of reducing global Co2 emmissions to net-zero by 2050' *Royal Meterological Society.* [Online]. Available at: What are the benefits of reducing global CO2 emissions to net-zero by 2050? - Hartley - 2022 - Weather - Wiley Online Library

Royal Pharmaceutical Society (2021) 'A Competency Framework for all Prescribers' [Online]. Available at: https://www.rpharms.com/resources/frameworks/prescribing-competency-framework/competency-framework

Appendices

Appendix 1: Process map of current pathway for micro-enema prescriptions



Appendix 1: Process map of current pathway for micro-enema prescriptions

RESOURCE USE KEY

Environmental resources	Social resources/impacts	Financial resources
1 Medications	1 Patient/carer time	1 Medications
2 Medical supplies	2 Patient/carer satisfaction	2 Medical supplies
3 Anaesthetic gases/nitrous oxide	3 Patient/carer relationships	3 Non-medical supplies
4 Propellant inhaler (MDI)	4 £ cost to patient/carer	4 Energy use
5 Non-medical supplies	5 Patient/carer wellbeing	5 Waste disposal
6 Energy use	6 Staff satisfaction	6 Water use
7 Waste disposal	7 Staff wellbeing	7 Staff time
8 Water use	8 Community impacts	8 Contracted services (e.g. cleaning, laundry)
9 Staff travel	9 Supply chain worker wellbeing	
10 Patient travel		

Appendix 2: A table to show the number of enemas prescribed in the radiotherapy department July-Sept 2024

Treatment Site	Prescriber	Px/careplan?	CT enemas	Millennium enemas	Total enemas prescribed	CT scan enema use	Total #s	Total enemas used	Enemas spare
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	MB	Careplan	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	LW	Careplan	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate/LN	SG	Px	2	24	26	1	20	21	5
Prostate	MB	Careplan	2	36	38	1	20	21	17
Prostate	MB	Careplan	2	36	38	1	20	21	17
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	OF	Careplan	2	36	38	1	20	21	17
Prostate	LW	Careplan	2	36	38	1	20	21	17
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	SG x 2 (1st discontinued)	Px	2	24	26	1	20	21	5
Prostate	HC	Px	2	21	23	1	20	21	2
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5

Prostate	MB	Careplan	2	48	50	1	20	21	29
Prostate	OF	Careplan	2	24	26	1	20	21	5
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	OF	Careplan	2	24	26	1	20	21	5
Uterus/LN	JVG	Careplan	2	24	26	1	25	26	0
Prostate	MB	Careplan	2	24	26	1	20	21	5
Prostate bed	SG	Px	2	24	26	1	20	21	5
Prostate	OF	Careplan	2	48	50	1	20	21	29
Bladder	LW	Careplan	2	12	14	1	8	9	5
Prostate	MB	Careplan	2	12	14	1	20	21	-7
Prostate	MB	Careplan	2	24	26	1	20	21	5
Prostate bed	SG + HC (1st discontinued)	Px	2	24	26	1	20	21	5
Prostate	CE	Careplan	2	24	26	1	6	7	19
Prostate bed	MB	Careplan	2	36	38	1	20	21	17
Prostate	SG	Px	2	24	26	1	20	21	5
Prostate	OF	Careplan	2	24	26	1	20	21	5
Prostate/LN	OF	Careplan	2	24	26	1	20	21	5
Prostate bed	LW	Careplan	2	36	38	1	33	34	4
Prostate bed/LN	LW	Careplan	2	24	26	1	20	21	5
Prostate	SG x 2 (1st discontinued)	Px	2	24	26	1	20	21	5
Bladder	MB	Careplan	2	12	14	1	6	7	7
Uterus/LN	Dr SG x 2 (1st discontinued)	Careplan	2	24	26	1	25	26	0
Prostate/LN	OF	Careplan	2	24	26	1	20	21	5
Prostate/LN	SG	Px	2	20	22	1	20	21	1
Prostate	OF	Careplan	2	48	50	1	20	21	29
Prostate	SG	Px	2	24	26	1	20	21	5

Prostate bed	SG x 2 (1st discontinued)	Px	2	24	26	1	20	21	5
Prostate	MB	Careplan	2	24	26	1	6	7	19
Uterus/LN	JVG	Careplan	2	24	26	1	25	26	0
Uterus/LN	JVG + Dr SG	Careplan	2	24	26	1	25	26	0
Uterus/LN	JVG	Careplan	2	36	38	1	25	26	12
Prostate	SG	Px	2	24	26	1	20	21	5
Bladder	OF	Careplan	2	12	14	1	6	7	7
Prostate	SG	Px	2	24	26	1	20	21	5
Cervix/LN	JVG	Careplan	2	48	50	1	25	26	24
Prostate	OF	Careplan	2	36	38	1	6	7	31
Cervix/LN	Dr SG	Careplan	2	36	38	1	25	26	12
Bladder	MB	Careplan	2	12	14	1	6	7	7
Bladder	MB	Careplan	2	24	26	1	7	8	18
Cervix/LN	JVG	Careplan	2	24	26	1	25	26	0
Prostate bed/LN	SG x 2 (1st discontinued)	Px	2	24	26	1	20	21	5

Total prescribed - 1723 enemas

Total spare - 505 enemas

Appendix 3. Patient Questionnaire

NHS
Royal United Hospitals Bath
NHS Foundation Trust

Pelvic Radiotherapy patient questionnaire

The pelvic radiotherapy team are part of an initiative to reduce waste at the RUH. We would like to understand your experience of getting enemas at the start of your treatment cycle, with the hope of lowering the amount of left over enemas at the end of a cycle. We also hope to improve patient experience by making access to the enema easier and more efficient for you. Please answer the below questions, your responses will remain anonymous. Thank you.

1. How often have you had to visit Lloyds Pharmacy (in the main atrium) to collect your enema prescription?

□ Once at the start of my treatment cycle

□ Twice

□ More than twice

2. Thinking about your visit to Lloyds Pharmacy (in the main atrium), on average how long did you have to wait for your prescription?

□ Less than 10 mins

□ Between 10-30 mins

□ More than 30 mins

3. Did you have to make extra visits to the pharmacy to collect further enema prescriptions?

□ Yes

□ No

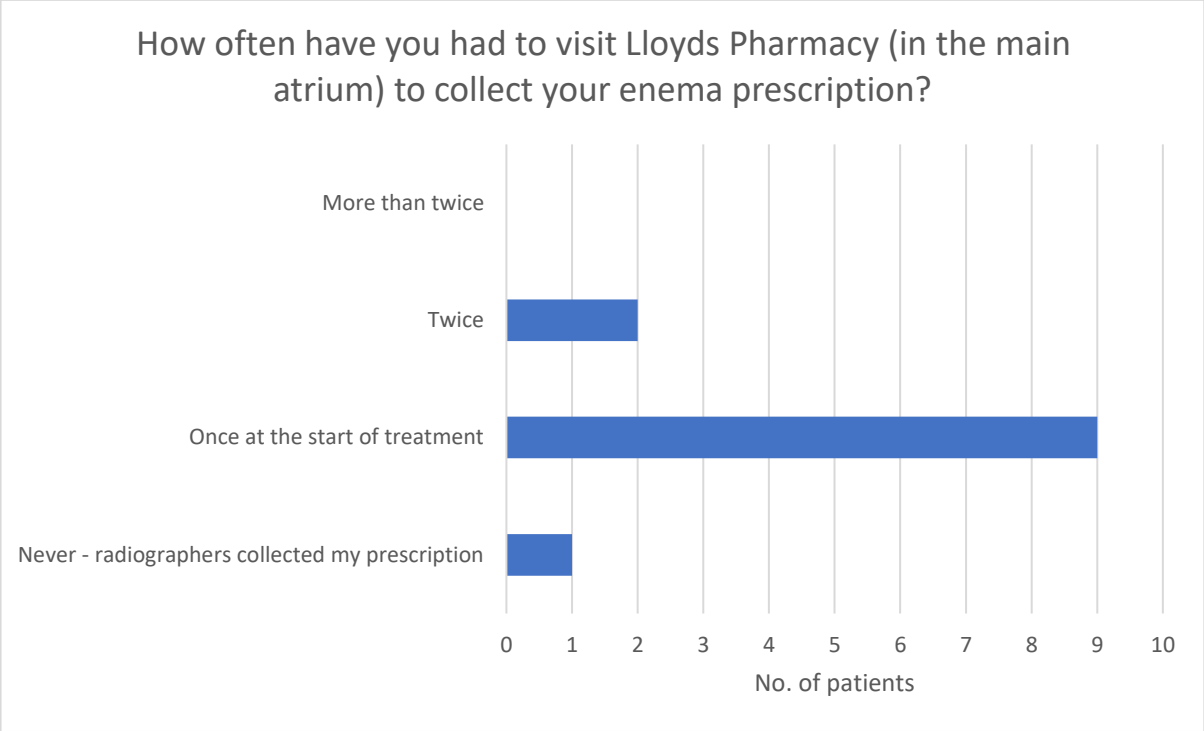
4. If yes, please tell us about your experience of this.

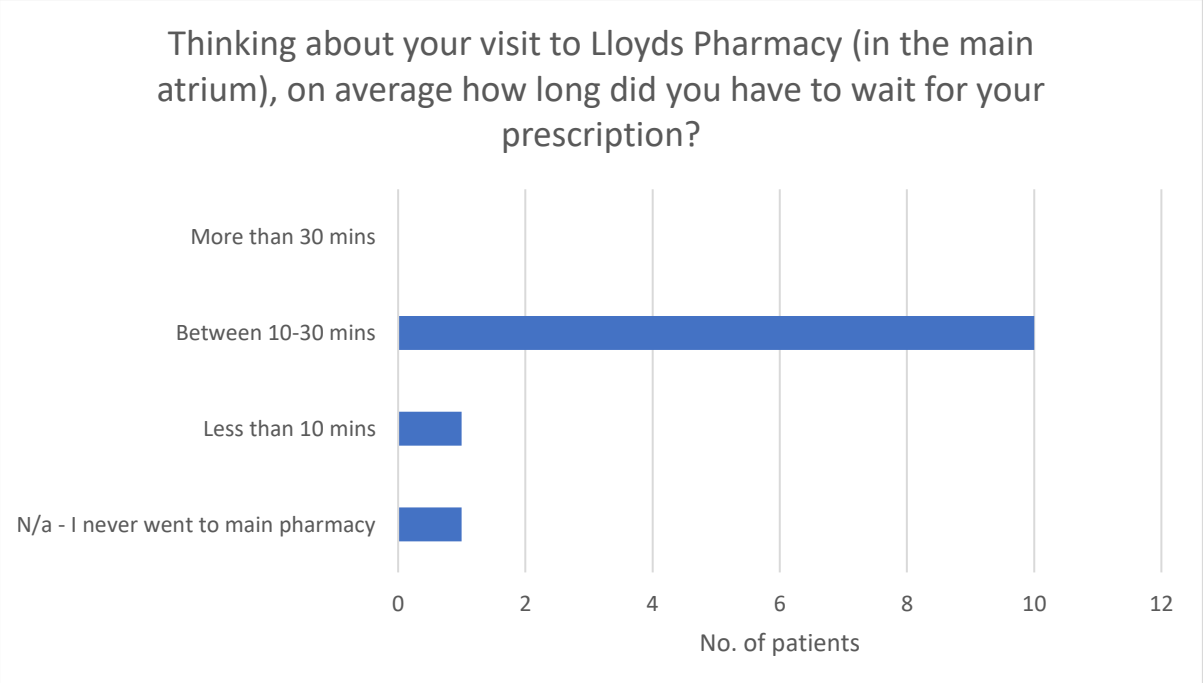
5. Did you have any enema's left at the end of your treatment cycle? (If yes, please tell us how many)

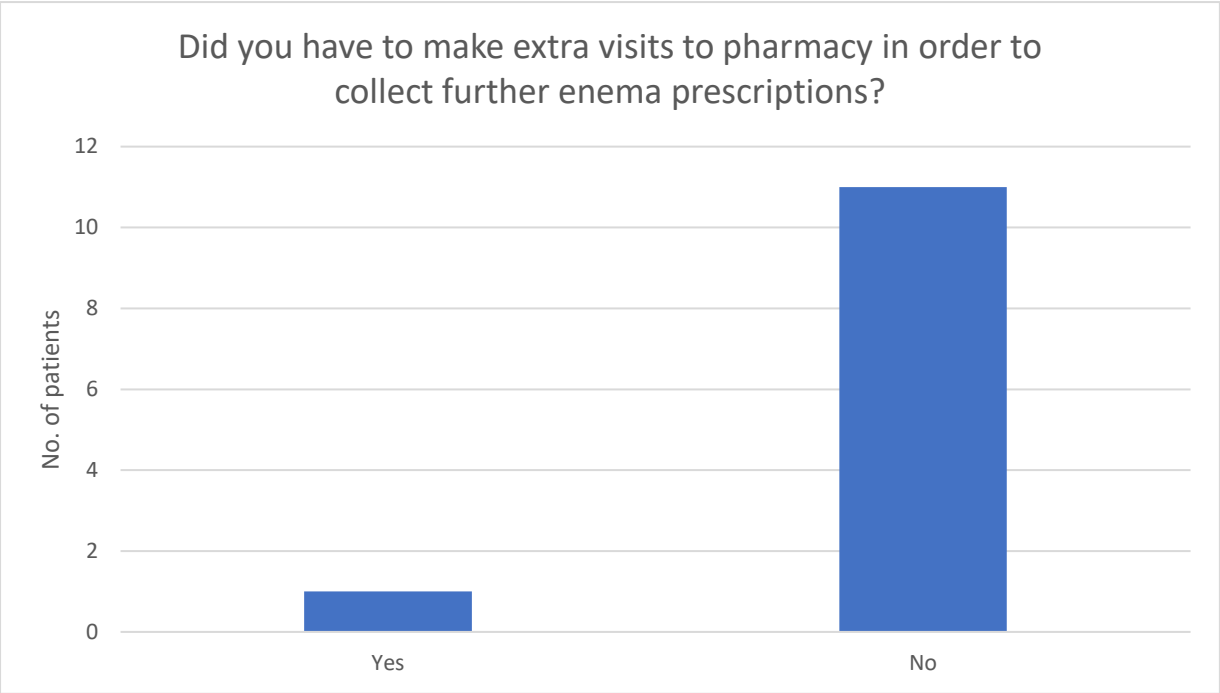
□ Yes
□ Amount left.....
□ No

Appendix 4. Patient Questionnaire Results

Pelvic Radiotherapy patient questionnaire: Results



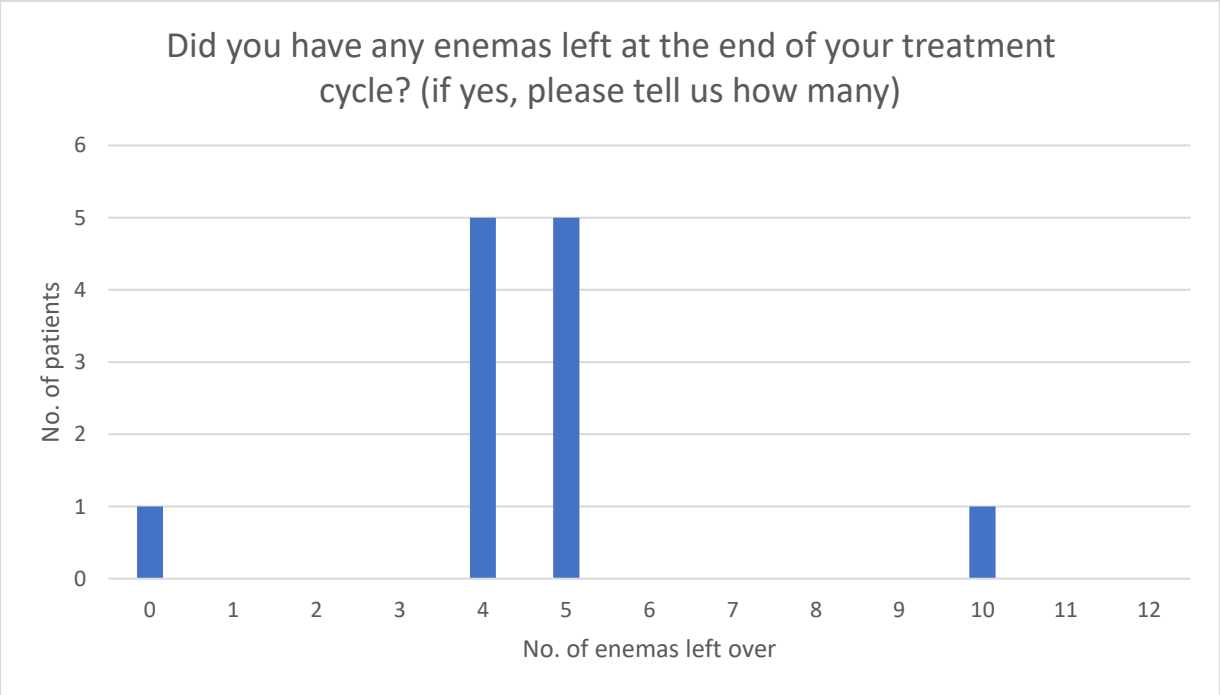




If yes, please tell us about your experience of this:

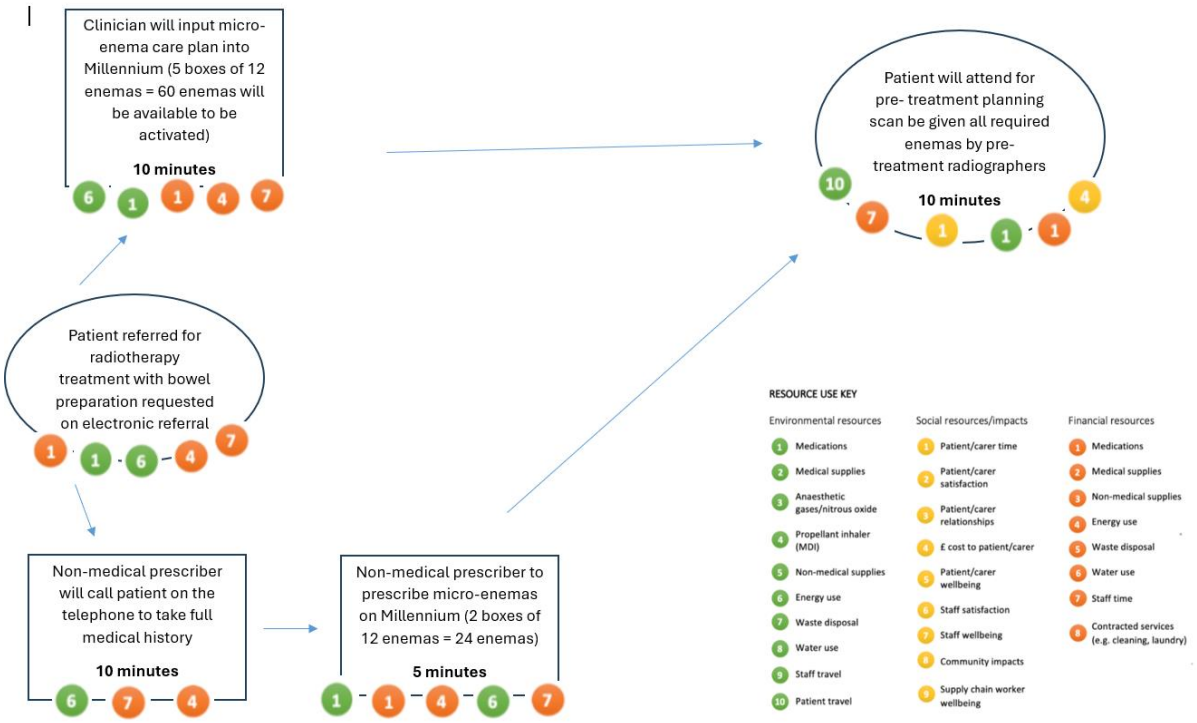
Only got 1 pack (12) first visit, needed 20.

On day 1, my prescription wasn't authorised and so wasn't ready. I received it from a radiographer on my next visit



Appendix 5. New Process Map

Appendix 6. Interim process map



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

This template is adapted from SQUIRE 2.0 reporting guidelines.

Template References

- SQUIRE | SQUIRE 2.0 Guidelines (squire-statement.org)
- Home | Sustainable Quality Improvement (susqi.org)