SUSQI PROJECT REPORT
Inhaler technique in the community for COPD patients

Start date of Project: October 2024 v6
Date of Report: January 2025

Team Members:

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Jo Stewart - Project Manager, Strategy and Planning

With thanks to

- Dordon and Polesworth and Spring Hill medical practices for their support during this project.
- Coventry and Warwickshire Training Hub, Pharmacy Technicians, Warwickshire North Engine Room, Coventry and Rugby GP alliance, NHS Integrated Care Board network, and Coventry and Rural North Warwickshire Primary Care Network.
- At George Eliot Hospital the project would also like to thank the William Harvey Library,
- Clinical audit and Finance colleagues.

Background:

Inhalers contribute 3% of the NHS Carbon Footprint. The NHS has committed to reducing its carbon footprint by 80% by 2028 to 2032, including a shift to lower carbon inhalers. Salbutamol metered dose inhalers (MDIs) are the single biggest source of carbon emissions from NHS medicines prescribing. The NHS England National Medicines Optimisation Opportunities for 2023/24 identified reducing carbon emissions from inhalers as an area for improvement. This is also a focus area for the Warwickshire Place Clinical Strategy currently in development.

Both Dry-powder (DPI) and Metered Dose Inhalers (MDI) are prescribed at George Eliot Hospital (GEH). Metered dose inhalers use fluorinated gases as the propellant: in 2020/21, 95% of the inhalers prescribed at George Eliot Hospital were MDI's, emitting 45 tCO2e. In contrast, DPIs emitted just 0.16 tCO2e. The latest figures show that DPI prescribing at GEH has increased to nearer 20% in 2024, however this is still below the NHS Standard Contract which stipulates 30% of all inhalers prescribed across NHS England should be DPIs. This could save 374 ktCO2e per year according to the NHS Net Zero report. Prescribing or promoting DPI inhalers may help to reduce the Trust Carbon Footprint but also reduce the use of MDI's within our local community.

Switching inhalers along with optimising use of inhalers presents significant opportunity not only for environmental benefit but for patient health benefit. Teaching patients how to use inhalers correctly, understanding the differences between them, and promoting greener alternatives can improve health outcomes by reducing reliance on high-carbon Salbutamol inhalers. Incorrect use often leads to unnecessary prescriptions, but proper technique could eliminate the need for frequent rescue inhalers, minimising waste and lowering the carbon footprint both at the Trust and

in homes. In addition, fewer inhalers and reduced hospital admissions from improved disease management offer potential for considerable cost savings, although it should be noted that all beds are filled again quickly after each patient leaving. Each patient costs on average £**337** a day. The average Length of stay (LoS) for COPD patients between November 2023 and 2024 was 9.54 days. The GEH Respiratory team provide advice at the bedside to patients and respiratory/COPD patients visiting patients at home in the community as part of the Respiratory Early Discharge Service for 2 weeks at home and review in COPD Nurse Led Clinic. They also run a patient Respiratory Support Group based at GEH and a fortnightly award-winning Singing for Breathing group for breathless patients and have run respiratory events in the community previously.

GEH participated in a project in 2023/24 to update information about inhalers for COPD patients due to our lower rates of DPI prescribing and to support acute patients who on admittance often do not know how to use their inhalers correctly. Incorrect inhaler technique was noted as over 50% of in-patients prior to the project. It was determined that developing ways to improve inhaler technique would support our sustainability challenges and at the same time benefit the health of our inpatients and patients in the community.

The project aimed to reduce COPD acute patients' attendance to the Trust through increased the use of greener alternatives where suitable for our patients and a focus on general inhaler technique advice. Feedback from patients said that the advice provided by the respiratory team had improved their use of inhalers. The Trust has had just under 1000 COPD patient assessments over the last 12 months (Dec-Dec 24). ·

"*The support available at the sessions is incredible, you can get much more specific advice than you do at just an appointment and it's so friendly and supportive."*
"I understand so much more about using an inhaler correctly due to the group, it's terrific."
Patient at Respiratory Support Group 2024

While positive feedback was received, a key outcome identified from this project, was that to truly improve respiratory care, inhaler technique and reduce the carbon footprint, we require involvement not only from within the Trust, but from Primary Care colleagues. Engagement and change by Pharmacists and GPs and patients in the community is a holistic approach that will have a long-term impact. Engagement with Pharmacists and GPs in the community would help create a more holistic approach to respiratory care prevention**.**

Our current project focuses on engagement with local partners. It has provided an opportunity to share our knowledge, learning and recommendations for COPD patients in the community. Over time it is expected that patient requirements to visit an acute setting would reduce but would not be easy to measure until the same time next year due to the increase in patients seasonally through winter pressures.

We focussed our project on COPD patients because we had already undertaken an inhaler project which focussed on COPD patients and working closely with pharmacy technicians as first content when admitted onto the ward. This green competition gave us an opportunity to work

collaboratively in the community, which was a recommendation from the earlier study. It was an opportunity to Make Every Contact Count by supporting them throughout their care from their GP, visits to pharmacists and to the Trust. This project aligns with National priorities including Make Every Contact Count (MECC) and Getting it Right First Time (GIRFT). In addition**,** respiratory health is a theme in our new Place clinical strategy (in development) and also features within our Green plan action to increase the use of Greener inhalers.

Specific Aims:

- To improve sustainable value of inhaler usage for patients with COPD by training staff in a GP practice as a trial for a wider approach in the community.
- Share advice about Inhaler techniques and Greener alternatives in the community to support the Making Every Contact Count approach for COPD patients.
- To start to roll out training across GP practices and pharmacies in the region.
- Pilot training in local GP practices would be undertaken to see if we could measure any actual or potential impact of these interventions on patients having to visit an acute hospital setting.

Methods:

Collaboration with Dordon Health Centre and Arley Spring Hill practice in Warwickshire and engaging with local medical community groups.

The project decided to focus on two GP practices Dordon and Polesworth and Spring Hill practice in Arley. Both GPs responded to an email sent to GP practices to see if they were interested in the free offer from the COPD specialist nursing team for support and were enthusiastic about participating in the competition. Both practices are in areas identified as a health inequality area. These sites would act as pilots that could then be rolled out in other GPs/organisations using a Plan Do Study Act (PD**S**A) approach.

Dordon Health Centre

The practice has been established for many years and serves the whole of Dordon, Polesworth and surrounding villages. Dordon and Polesworth Surgery building was completed in 1990 and is now the main administrative centre with six doctors rooms, three nurse consultation rooms, one nursing treatment room, one Emergency Care Practitioner room, large dispensary and administration office. Polesworth Health Centre houses a smaller branch surgery including two doctors' rooms, a nursing treatment room, a reception and small dispensary. Their team of clinical and administration staff includes three GP partners and two salaried doctors, alongside two Emergency Care Practitioner, five Practice Nurses, two Health Care Assistants and Dispensers. The clinical staff are all supported by reception and administration staff. The main contact at Dordon was Pharmacist Maha Waraich. The training included update on national NICE guidance and Global Obstructive Lung Disease (GOLD) guidance, inhaler use, a brief about the project, inhaler technique and advice about using greener alternatives who could use this type of inhaler. They also stressed that dry powder inhalers are not suitable for all patients but where possible they are a much greener alternative than a pMDI inhaler. The initial meeting involved GP's Advanced Care Practitioners and Clinical Pharmacists. A second meeting was arranged to meet the Practice nurses involved with annual COPD reviews.

Unfortunately, this encounter has not taken place, an initial face to face contact and exchange of email addresses has had no positive response.

Data requested from Dordon was high level data about the number of COPD patients. They also shared the feedback form to support understanding their learning and any barriers to prescribing practice for greener choices.

Arley Spring hill practice

Spring Hill Medical Centre is a semi-rural teaching practice, covering Fillongley, Arley, Galley Common and all of the Nuneaton area, with a 10,200 patient list. The practice prides itself on delivering excellent patient care, with continuous focus on quality whilst offering a wide range of enhanced services. The practice has five doctors, a nursing team including a Senior Practice Nurse and a health care assistant.

The practice is also a training/teaching practice. Our trainees are fully qualified and include registrars are attached to the practice for six to 12 months and usually become general practitioner partners after completing their training. In addition, the practice also mentors medical students for approximately three months in conjunction with Warwick Medical School and student nurses.
Training was provided as above for Dordon, and feedback was provided after the visit. Data would also be identified to measure the number of COPD patients were available and feedback from staff after the engagement session.

Wider community engagement with Place Partners/GPs/Pharmacists.

To embed the advice from the respiratory team the project team wanted to share their information and expertise widely with GPs, pharmacies and nurses in the community. We identified networks and groups that could then be used to spread the advice in the community to improve inhaler technique, consider greener choices and potentially reduce some of the COPD patients requiring acute beds at the hospital in the future.

The project used different methods to get interest and engagement with local specialists/clinicians. They attended events and emailed GPs in the borough to identify a GP that they could trial this approach to encourage clinicians to strengthen inhaler technique in patients, and the benefits of using greener inhalers.

Project lead Lisa Taylor attended several engagement events to share inhaler and greener advice for COPD patients including:

- Warwickshire North Engine Room (27th November) attended by several GPs at Weston Hall.
- ICB Network event attended by clinicians from across Cov**entry** and Warwickshire (27th October).
- International Medical Graduates at George Eliot Hospital (21st November).
- Primary Care Network Event (4th December).
- Coventry and Warwickshire GP alliance Pharmacy Technicians (Friday 31st Jan 2025 - Woodland Grange, Old Milverton Lane, Leamington Spa CV32 6RN).

- Dordon and Polesworth GP (25th November – GP, 9th Jan 25, at the surgery not attended by practitioners – no response for f/u).
- Rural North Warwickshire Primary Care network (29th January).
- Spring Hill medical centre, Arley Warwickshire (23rd January).
- Coventry & Warwickshire Training Hub – Pharmacy Technicians (31st Jan 2025).
- Junior doctors and new Consultants at George Eliot Hospital (every cohort).
- Patient **engagement through respiratory support group (January 2025).**

The project also wrote to individual GPs and Place partners in primary care to promote the offer for Lisa to attend their practice to provide advice. She has a few events planned already for 2025 including.

- Dordon follow up session with respiratory nurses with the Physiotherapy team
- Hartshill Health Centre.
- Bedworth Health Centre
- Community Learning for North based teams (SWFT)
- Red Roofs surgery
- Junior Doctors (further groups)

They also shared the QR codes for the web pages about inhaler technique, video technique and other useful information. They agreed to have a follow up session with respiratory nurses in January with the Physiotherapy team. This meeting has been planned.

Links to useful advice is available below.

- Information about using your inhalers :: George Eliot Hospital
- Patient Information Resources :: George Eliot Hospital
- Using an Inhaler and Spacer :: George Eliot Hospital
- Seven Steps to Good Inhaler Technique :: George Eliot Hospital
- Singing for breathing :: George Eliot Hospital

Measurement:

Patient outcomes:

The following information was requested from Dordon and Spring Hill to support in measuring project outcomes including:

- Number of COPD patients registered with the practice
- the number of COPD patients **they** see in a year (COPD register)
- Feedback following the sessions from the respiratory team.

The project received feedback regarding the training from the two practices used in this project Dordon and Polesworth and Spring Hill in Arley.

The following within this Trust was also collected through audit information:

- Length of stay for COPD patients in December 2023 (pre-training) at George Eliot Hospital and December 2024 (post training) to see if there were any patterns.

- Number of COPD patients over 12 months seen by the Respiratory Early Discharge Team and Respiratory team.

It would be difficult to measure any impact from interventions from the COPD team in a short amount of time but would be interesting to measure longer term and specifically measure those patients from the two practices in the pilot.

Environmental sustainability:

At Dordon and Polesworth Practice and Spring Hill we measured;

- Distance travelled to the hospital from Dordon and Spring Hill medical practices. If based near the GP as address information was not available for this project to see how much CO2e could potentially be saved by each reduced visit to the hospital.
- A breakdown of inhaler types prescribed **taken from Open prescribing** was used: Prescribing measures for DORDON & POLESWORTH GROUP PRACTICE | OpenPrescribing

At George Eliot Hospital the team measured the number of Inhalers since April 2023 to December 2024.

- Number of inhalers used at the Trust over 12 months (this does not measure location of patient).
- Length of stay of acute patients
- Difference in bed day in December 2023 and 2024 for Dordon and Arley patients at the George Eliot Hospital.
- Number of bed day reduction Number of bed day reduction x 89.5 kgCO2e (high intensity bed day) = X kgCO2e saved.

We also received feedback from patients attending our respiratory patient group at the George Eliot Hospital patients who are COPD patients in January 2025.

Economic sustainability:

The project team worked with the GEH William Harvey Library and finance team to look at related published research in this area, particularly about the costs of treatment for COPD patients. The measures identified varied depending on the source and the cost of a patient per day or stay can vary depending on the type, reason and level of complexity. Our research also included information from the National cost collection from the NHS and a UK parliament statement.

Our operational team suggested an amount of £300 per day and our finance team suggested an amount of £337 per day. After this research we decided to go with the finance team because this is the cost of a bed based on our clinic codes. However, it must be noted that there was not an easy to find definitive answer and a recommendation would be to review these after the project.

We also measured the costs of DPI/PMDI inhalers from data at GEH and at the two GP practices we used in this study. We decided to measure the cost using data from our own finance team who identified the costs based on our clinic patient codes.

Social sustainability:
Feedback was received from staff at the two pilot sites. In addition the community engagement also obtained feedback from staff attending thee events. Coventry and Warwickshire Training Hub attended by Pharmacy technicians (31st January). The engagement at the Warwickshire North Engine Room (27th November) attended by several GPs at Weston Hall.

At this event the respiratory team an opportunity to share their advice with several surgeries across Nuneaton and Bedworth including Manor Court surgery, Red Roof surgery, Queens Road Surgery, Stockingford Surgery, Riversley Road Surgery, Bedworth Health Centre, Arbury Medical Centre and the Grange Medical centre.

Feedback is summarised in the results section.

Results:

More time post GP training is required to identify if a change has been made to COPD practice, inhaler prescribing and admissions to hospital. We have outlined potential impacts and baseline data below.

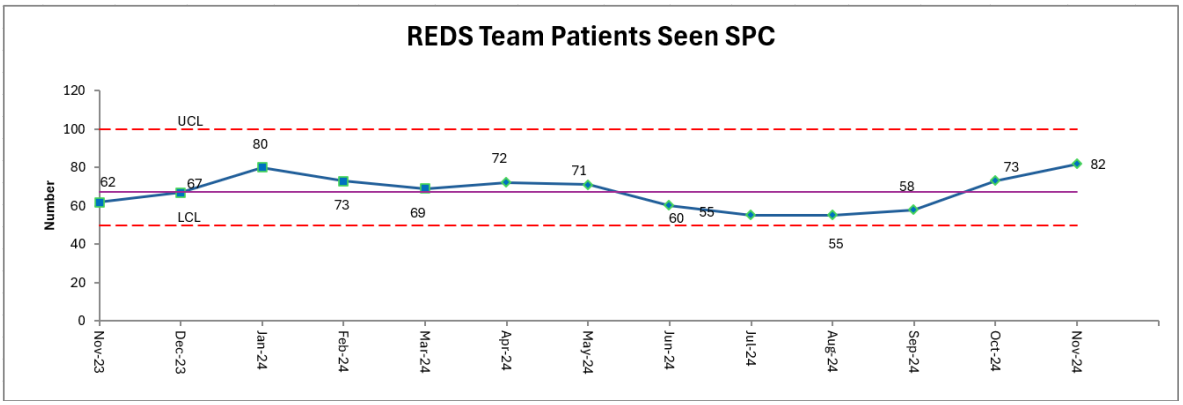
Patient outcomes:

Pilot sites

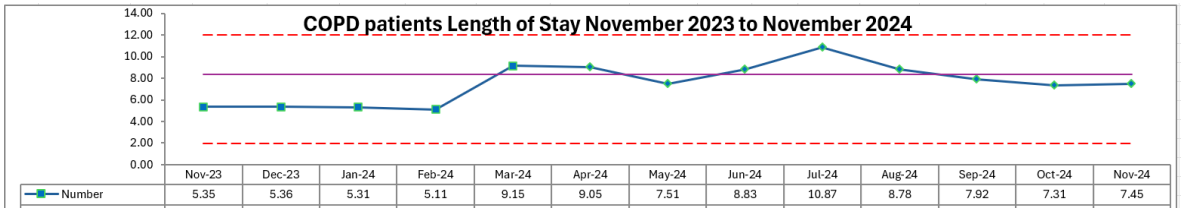
During our research we found out through the 2024 North Warwickshire QOF database that out of the total number of patients serviced by both pilot sites, 2.9% at Dordon and Polesworth and 2% at Spring Hill medical practice have COPD. The national average for 2024 was 1.86%. By supporting staff in the GP service to improve their inhaler education and prescribing, we can support in improving care and health outcomes for these patients. This pilot did not include a session with patients as it was primarily aimed at engagement with staff to train patients.

GEH Patients feedback

Lisa's team saw 877 patients between November 2023 and November 2024 at the George Eliot hospital. These patient visits can follow a seasonal pattern depending on hospital pressure points and staff availability. Some of these patients would have been from the two pilot surgeries however this data is not available. This makes it difficult to identify monthly patterns for two GPs during the pilot.



Their average length of stay was 9.54 days;



The Respiratory Group at GEH fed back the impact of advice from the COPD clinical nurse specialists about inhaler use and greener inhaler alternatives at the group in December. This could not be broken down to the two GP practices specifically in such a short period of time for the project.

The patients were far more confident in their ability following the training from the COPD team. The session provided them with the ability to talk about COPD and how to manage it better. Interestingly thought patients were mostly only slightly concerned about the environmental impact of inhalers and COPD management. Two in the workshop were not at all concerned about the environmental impact.

Patients who attended pulmonary rehab clinics by COPD nurses also were provided with information that they took back into the community.

Environmental sustainability:

Dordon and Polesworth data

Potential reduction in travel

Both pilot practices are in the outer parts of the North Warwickshire catchment area for patients. Dordon is approximately 11 miles from the George Eliot Hospital. So, for an average return journey where 22 miles were driven, an average car would emit approximately 7.5 kgCO2e. Arley is not so far away (6.4 miles) so an average care would emit approximately 4.3 kgCO2e (using emission factor from UK Government Database 2024). We do not yet not data available to identify if a saving has been made form reduced patient travel.

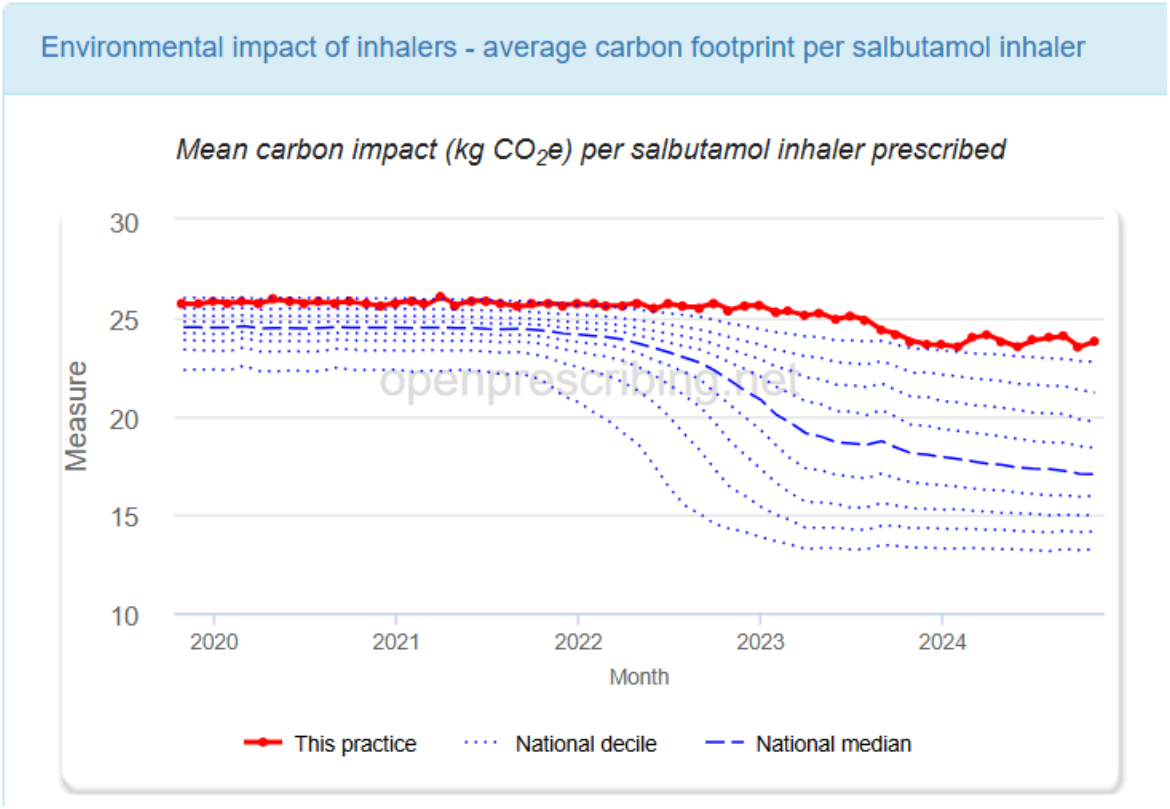
Inhalers

In Dordon most inhalers prescribed were Pmdi Inhalers.

Prescribing measures for DORDON & POLESWORTH GROUP PRACTICE | OpenPrescribing

Data was available on Open Prescribing about this practice.

The below table shows the environment impact of salbutamol inhalers and the presentations contributing to the variation for the three months up to November 2024. The use has seen a small decline in the carbon impact since 2023.



https://openprescribing.net/measure/environmental_inhalers/practice/M84007/

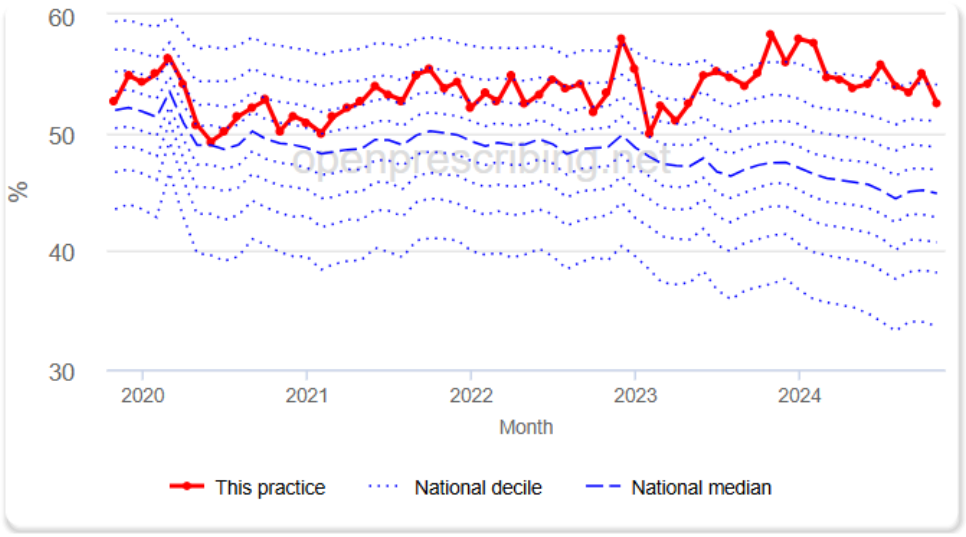
Data is available up to November 2024

Presentation	Items	Quantity	Cost
Salbutamol 100micrograms/dose inhaler CFC free	1,016	1,094	£1,556.72
Ventolin 100micrograms/dose Evohaler	418	462	£656.75
Salamol 100micrograms/dose inhaler CFC free	204	214	£296.71
Salbutamol 100micrograms/dose breath actuated inhaler CFC free	19	19	£113.16
Salamol 100micrograms/dose Easi-Breathe inhaler	14	15	£89.95
Easyhaler Salbutamol sulfate 100micrograms/dose dry powder inhaler	19	21	£66.05
Airomir 100micrograms/dose Autohaler	2	2	£11.46
Salbutamol 100micrograms/dose dry powder inhaler	2	2	£6.32
Salbutamol 200micrograms/dose dry powder inhaler	3	3	£5.71
Ventolin 200micrograms/dose Accuhaler	3	3	£5.71

The below table shows the prescribing of short acting beta agonist (SABA) inhalers compared with prescribing of inhaled corticosteroid inhalers and SABA inhalers until November 2024.

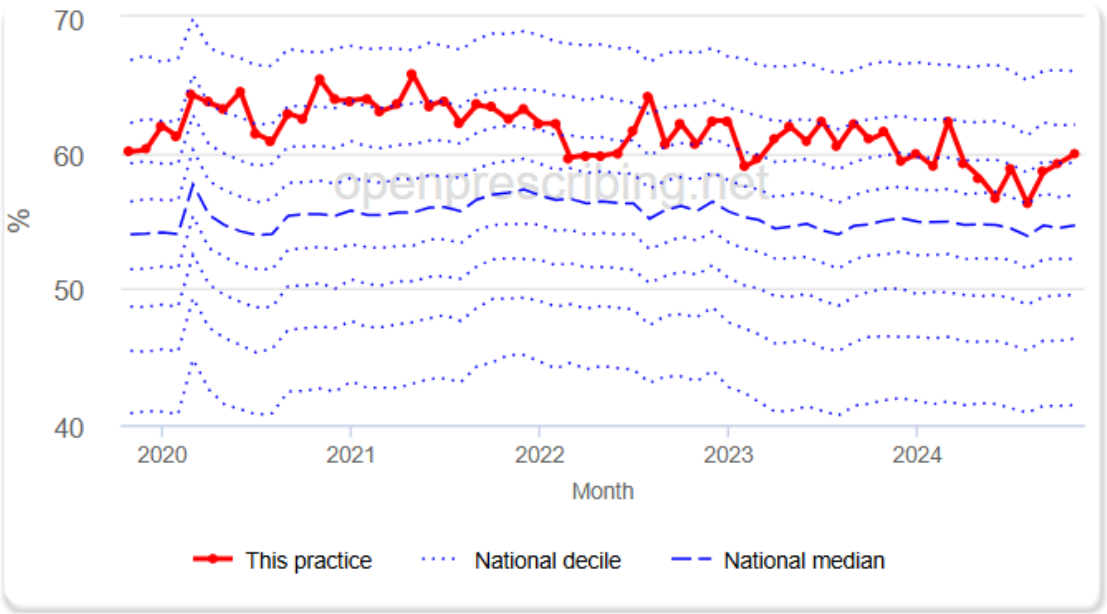
Short acting beta agonist inhalers

Number of short acting beta agonist (SABA) inhalers - salbutamol and terbutaline - compared with number of all inhaled corticosteroid inhalers and SABA inhalers



The table belows shows the MDIs prescribed as a proportion of all inhalers excluding Salbutamol. The table below also shows the presentations contributing to this variation for the three months up to November 2024.

MDIs prescribed as a proportion of all inhalers in BNF Chapter 3, excluding salbutamol



Presentation	Items	Quantity	Cost
Generic Trimbow 87micrograms/dose / 5micrograms/dose / 9micrograms/dose inhaler CFC free	399	401	£17,665.74
Fostair 100micrograms/dose / 6micrograms/dose inhaler	387	478	£13,865.92
Fostair 200micrograms/dose / 6micrograms/dose inhaler	109	109	£3,134.97
Trimbow 172micrograms/dose / 5micrograms/dose / 9micrograms/dose inhaler	36	36	£1,567.70
Trixeo Aerosphere 5micrograms/dose / 7.2micrograms/dose / 160micrograms/dose pressurised inhaler	36	36	£1,522.37
Clenil Modulite 100micrograms/dose inhaler	137	137	£956.69
Beclometasone 100micrograms/dose / Formoterol 6micrograms/dose inhaler CFC free	28	33	£944.95
Seretide 125 Evohaler	32	34	£749.14
Seretide 250 Evohaler	19	22	£607.60
AirFluSal 25micrograms/dose / 125micrograms/dose inhaler	27	27	£421.52

Ventolin Evohaler 100 microgram inhaler emits 28.26 (kg CO2e) carbon emissions for inhaler. A Ventolin Accuhaler 200 microgram inhaler emits 0.58 kg CO2e). This compares pMDI and DPI Accuhaler both used by COPD and Asthma patients.

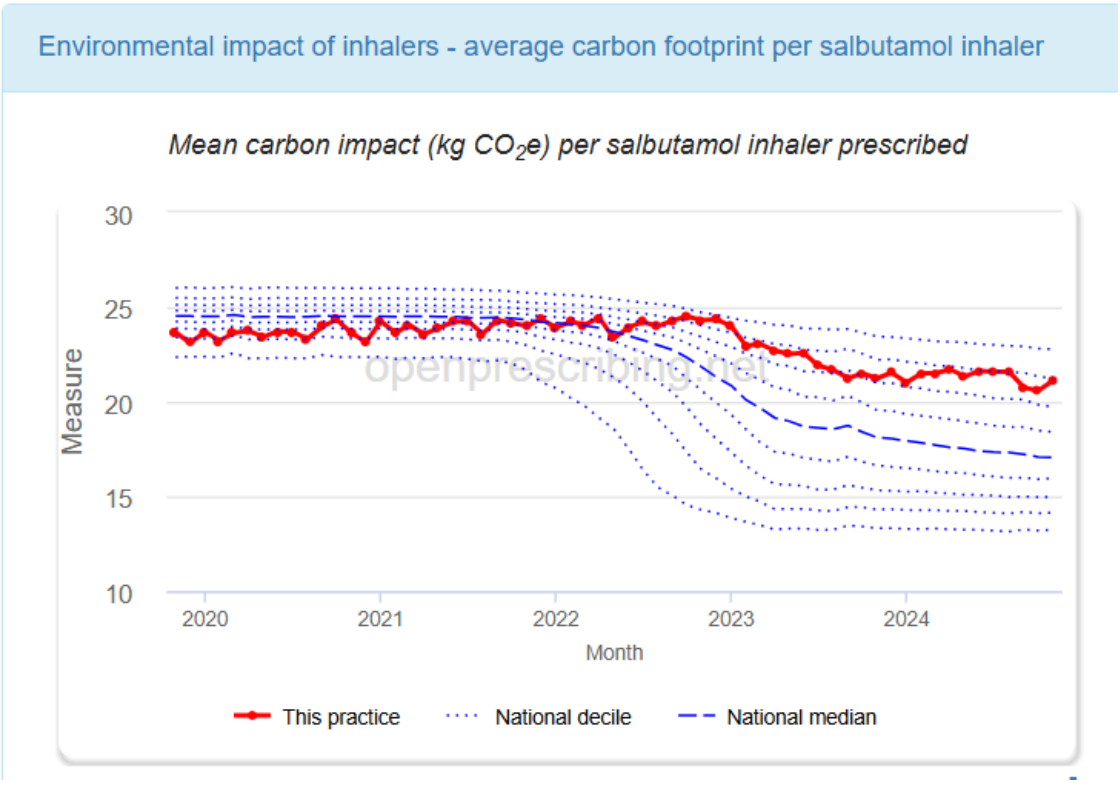
Spring Hill data

167 patients on COPD register, 2989 inhalers were issued to our COPD patients and use a mixture in line with Coventry and Warwickshire APC guidelines.

We also included below Open Prescribing data for Spring Hill.

Prescribing measures for SPRING HILL MEDICAL CENTRE | OpenPrescribing

The below table shows the environment impact of salbutamol inhalers and the presentations contributing to the variation for the three months up to October 2024.

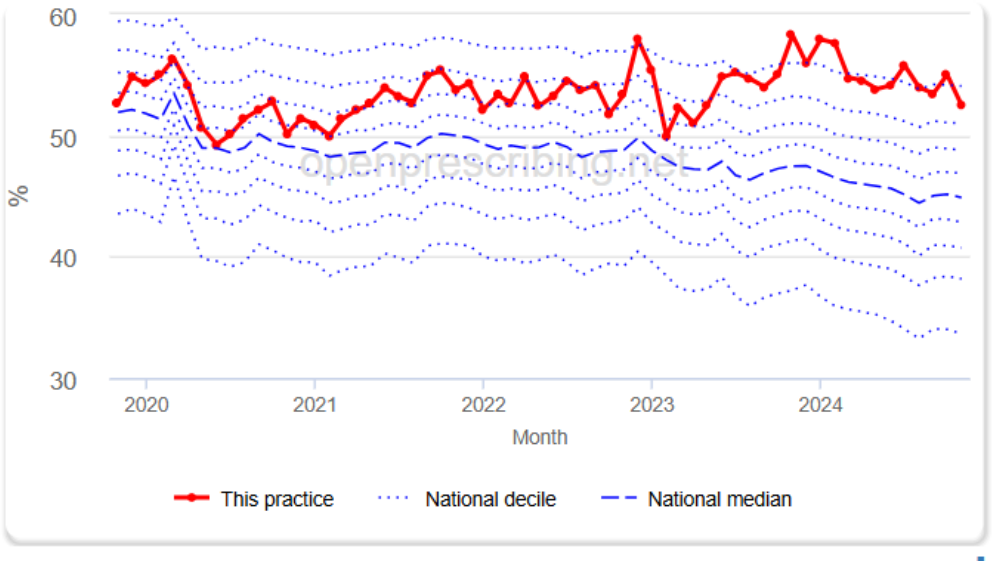


Presentation	Items	Quantity	Cost
Salbutamol 100micrograms/dose inhaler CFC free	354	373	£535.92
Salamol 100micrograms/dose inhaler CFC free	243	251	£351.15
Ventolin 100micrograms/dose Evohaler	152	169	£242.71
Salamol 100micrograms/dose Easi-Breathe inhaler	32	32	£191.92
Easyhaler Salbutamol sulfate 100micrograms/dose dry powder inhaler	17	17	£53.66
Salbutamol 100micrograms/dose breath actuated inhaler CFC free	7	7	£41.98

The table below shows the prescribing of short acting beta agonist (SABA) inhalers compared with prescribing of inhaled corticosteroid inhalers and SABA inhalers.

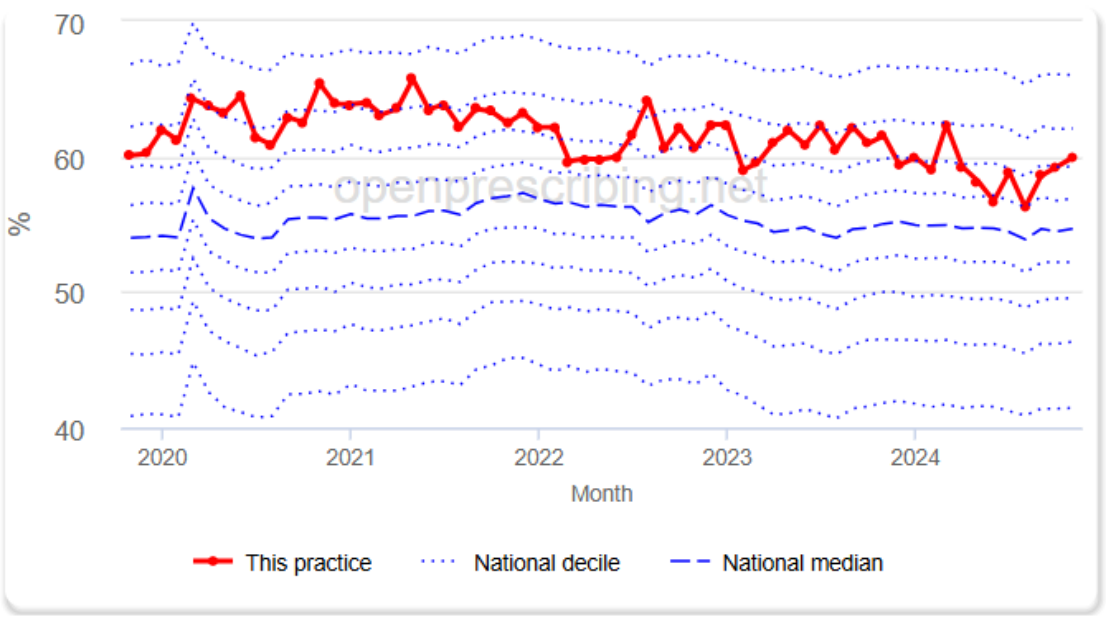
Short acting beta agonist inhalers

Number of short acting beta agonist (SABA) inhalers - salbutamol and terbutaline - compared with number of all inhaled corticosteroid inhalers and SABA inhalers



The below table shows MDIs prescribed as a proportion of all inhalers, excluding salbutamol.

MDIs prescribed as a proportion of all inhalers in BNF Chapter 3, excluding salbutamol



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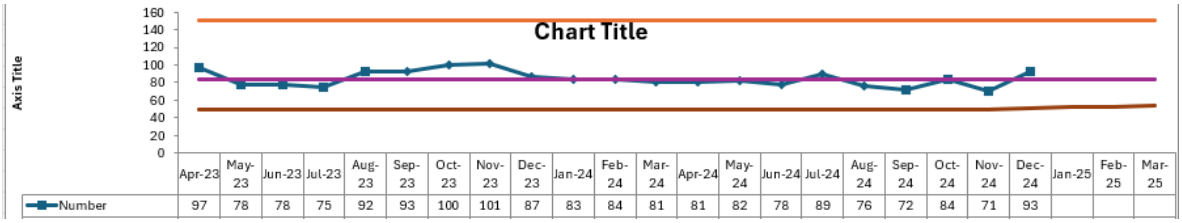
Clenil Modulite 100micrograms/dose inhaler	137	137	£956.69
Beclometasone 100micrograms/dose / Formoterol 6micrograms/dose inhaler CFC free	28	33	£944.95
Seretide 125 Evohaler	32	34	£749.14
Seretide 250 Evohaler	19	22	£607.60
AirFluSal 25micrograms/dose / 125micrograms/dose inhaler	27	27	£421.52

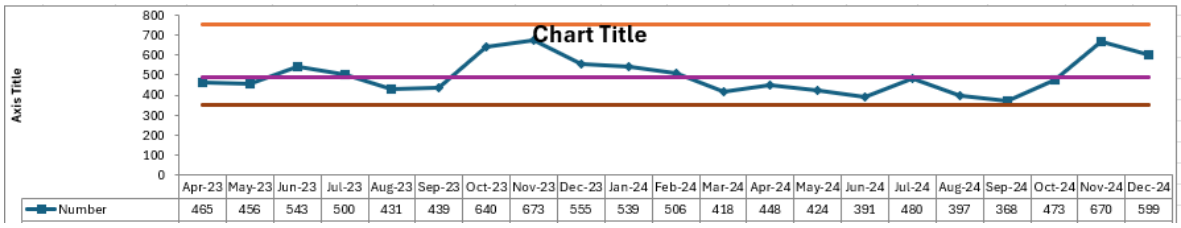
The post training data is not yet available, but the Respiratory team will continue to monitor open prescribing and collaborate with the GP sites to measure changes to inhaler prescribing through the sustainability green plan focus group and reporting. Open prescribing records all inhalers and it would have been useful to break this down further which made analysis more challenging. Also, the data is always a couple of months behind.

Inhaler use findings at George Eliot Hospital

Use of inhalers at George Eliot Hospital.

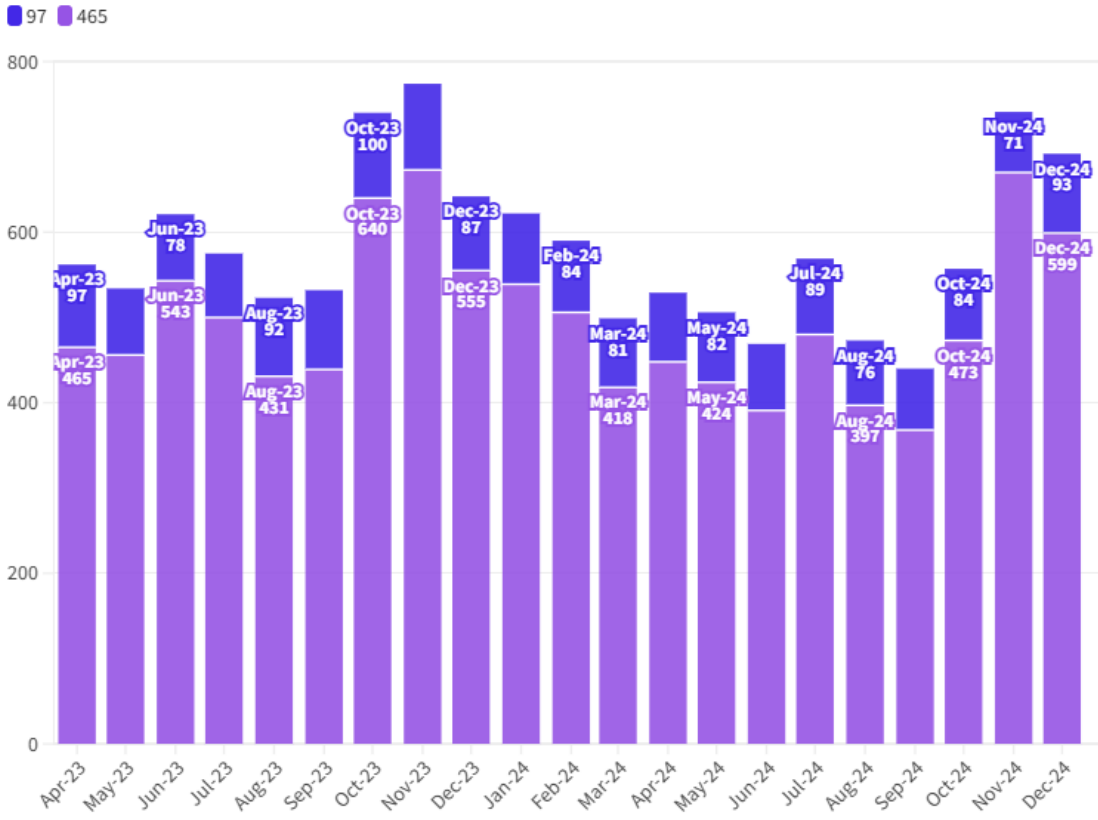


DPI inhalers April 2023-December 2024



MDI inhalers April 2023-December 2024

In the first six months of 2024/25 478 DPI Soft Missed inhalers were prescribed at George Eliot Hospital. 2,508 PMDI inhalers were prescribed **(2986 inhalers in total)**. This on average is **16**% of all inhalers prescribed. In 2023/24 for the same period. 513 DPI inhalers were prescribed and 2,834 PMDi inhalers were prescribed. 18% of inhalers were DPI/Soft mist inhalers.



GHG emissions (kgC02e)		
	2023	2024
October	8,885.60	6,572.94
November	9,581.15	9,516.77
December	7,669.94	8,278.27

When measuring the carbon impact of inhalers at George Eliot Hospital between 2024 to 2023 (October – December) some positive carbon impact differences appeared. See above table. In October and November there were reductions in the carbon impact of the data provided compared to the previous year. Noticeably in October 2024. However, in December there was an increase. This may have been partly due to the increase in respiratory patients during that period due to increases in flu, covid and respiratory viruses in the community compared to the year before. Seasonal variations do have an impact on carbon usage but hopefully the longer-term impact of this project may demonstrate greater carbon reduction. We had hoped we may see an improvement following engagement but didn't see this because of winter pressures impact inhaler use. Data was not published by the two pilot sites in time to include in this pilot. It would be good to measure in 12 months time.

Economic sustainability:
The average bed day cost per COPD patient is £337 based on information from George Eliot Hospital finance team.

However, it should be noted that this is an efficiency saving and not a true cost saving if you reduce bed stay. The reason the cost does not get removed or classed as a cost CPIP is because there are several overhead/fixed costs included in this which won't change, and the bed won't close. Not using a bed will free up the space for another patient, so costs still being incurred. If the bed did close permanently then it would have a proportion of this cost as a saving, but this is very unlikely in any busy NHS Trust at present.

There isn't any specific data for the two pilot practices and more time would be needed to monitor or research this data to see if there was an impact on Length of Stay or cost savings.

Inhaler costs could potentially be reduced for patients if they are correctly using their medication and reduce visits to hospital. The costs are considerable for both primary and acute care. Below is an example of the costs of the most expensive inhalers at Dordon practice as an example. Please note that the inhalers below are used by COPD and Asthma patients as per their individual drug licencing and current prescribing preferences.

Presentation	Items	Quantity	Cost
Generic Trimbow 87micrograms/dose / 5micrograms/dose / 9micrograms/dose inhaler CFC free	380	381	£16,785.48
Fostair 100micrograms/dose / 6micrograms/dose inhaler	377	462	£13,400.02
Clenil Modulite 100micrograms/dose inhaler	138	138	£965.64
Fostair 200micrograms/dose / 6micrograms/dose inhaler	91	91	£2,610.28
Trimbow 172micrograms/dose / 5micrograms/dose / 9micrograms/dose inhaler	37	37	£1,607.27
Trixeo Aerosphere 5micrograms/dose / 7.2micrograms/dose / 160micrograms/dose pressurised inhaler	35	35	£1,480.11
Seretide 125 Evohaler	32	33	£725.43
Beclometasone 100micrograms/dose / Formoterol 6micrograms/dose inhaler CFC free	27	33	£944.94
Clenil Modulite 50micrograms/dose inhaler	26	28	£97.79
AirFluSal 25micrograms/dose / 125micrograms/dose inhaler	26	26	£405.91

Social sustainability:
The project visited both Dordon and Spring Hill practices and attended events in the community.

Feedback from Dordon and Polesworth medical practice
"*Good to have hands on multiple inhaler devices*."
"*Good to discuss different view regarding Ventolin and Salamol cfc free devices*" That included size of device and propellant.

Dordon and Polesworth did not complete the feedback survey.

Feedback from Spring Hill medical practice
Staff at the practice completed the feedback survey provided. On a scale of 1-5 the practice found that they were mostly more confident assessing a patient with COPD for a suitable inhaler and more confident training patients with COPD on correct inhaler use.

Staff commented that the biggest challenges for optimising COPD care and inhaler practice in the surgery were time, staff, patient education and compliance and patient resistance to change. They also fed back that A&E can provided different medication to that offered by the GP.

The practice saw a slight change in the support they required to enhance their ability to support COPD patients using inhalers after the training.

They commented that they thought small face to face group sessions for patients would be beneficial to improve COPD care and inhaler practice and for the practice nurse to support GPs. Also, more alignment with A&E to ensure they prescribe COPD treatments.

The team at Spring Hill are concerned about the environmental impact of inhalers and COPD management and one commented that they were *"provided with good information and insight today. T*hank you."

Community engagement

Feedback from Coventry and Warwickshire Training Hub event (31st January) with 26 pharmacy attendees.

14 completed the pre meeting feedback and 10 completed after the event. Lisa received positive feedback for this presentation;

"Your expertise was really valued, and I appreciated you being able to be present for the day. I know the techs benefitted from the discussions you were part of, and the feedback we have seen is really great. Your delivery was really engaging, you must have a lot of experience of presentation delivery. This was only my third event, so I took a lot from your delivery style personally." Donna Towers, Coventry and Rugby GP Alliance

Feedback was analysed following the event and the main findings were as follows.

- Training patients showed an improvement in confidence.
- The potential to optimise inhalers increased by 50%
- Results showed an increased awareness in training and support largely patient communication and education techniques.
- Information about environmental impact for inhalers and COPD increased 50% pre – post training.
- Environmental impact increased by 50% for the very concerned option.

The biggest challenges to optimising COPD care before the engagement session was that patient's perception and understanding, compliance and understanding. They also mentioned educating GPs and the practice manager. After the training they also commented that patient's perception and not liking change would still be an issue.

When asked what additional support or resources required before the training attendees commented that education GPs as well as nurses was important, having dummy inhalers/placebo would help when showing patients how to use equipment, involving the whole team and having a sheet of inhalers and uses. Post workshop one participant commented that they would like to see more workshops/events and ongoing training.

The project team felt that Pharmacy's provide patients with the medication and their role and support is invaluable for patient's use of inhalers.

Take home messages from attendees included.

"Time/knowledge to spend and help patient to understand how they get the most from their inhalers. "

"The inhaler correct for the patient"

"The best inhaler for a patient is the 1 they consistently use "

"Educating patients is about the different inhalers, patient specific"

"The difference between an MDI and a DPI and how to use them. The difference between asthma and COPD."

Feedback from the Warwickshire North Engine Room (27th November) attended by several GPs at Weston Hall.
"More complex (assessment and device choice for inhaler device) than I first thought"

Feedback from Donna Towers Coventry & Warwickshire Training hub.
"Looks great, gaining a greater understanding of the pathophysiology and differences between COPD/Asthma will be really valuable for the techs."

Learning for the COPD team at George Eliot Hospital
The project team noted that longer term impact could potentially measure GP repeat visits for patients who have received more confident training, reduced time spent with patients, late finishes and potentially need for interpreters to support patient appointments.

At the hospital the increase in confident and knowledge could reduce visits, reduce length of stay and fewer patients staying in an acute setting.

Bed space could also be saved if few patients to enable other patients to use these valuable bed spaces, particularly during winter pressures.

This was not able to be measured due the delay in publishing information by open prescribing and also the short time of the pilot.

Discussion:

The research and activity of this study supports the NHS 10-year plan 2024 which is more community focussed but had challenges to obtain information during the ever increasing pressures for the NHS, particularly during the winter.

The project presented information about inhaler use and greener inhalers at several events and aimed to try to identify a couple of GPs that the project team could present to. An email was also sent via the local Integrated Care System to GPs. The project had a short timeframe so could only focus on those practices that responded to the email.

Initially the project intended to just focus on one practice but did not get detailed feedback from the Dordon and Polesworth practice to support the project and the team planned to visit again in spring 2025 to engage further with this practice through the practice nurse specialists. The team decided to also provide information from the Spring Hill practice in Arley who were visited in January 2025. The findings from this visit is included in the report. Both practices gave positive verbal feedback following the engagement but the impact of any changes following the sessions would take longer to analyse that the timeframe for the project. Although feedback from the engagement sessions were positive it would take several months to see if there was an increase in greener inhalers and also fewer COPD patients presenting at GEH from the practices engaged with.

Cost and carbon savings could be made by reducing exacerbation rates or not using excessive inhalers, antibiotics and steroids. This would need to be measured in the community over a longer period to see if the changes at a local and national level are implemented successfully.

Asthma guidelines was updated in November 2024 which will see a decline of salbutamol inhalers as they are now not recommended for inhaler pathways.

The research showed that the there was still a high reliance on Pressurised Metered Dose inhalers in the community and at GEH. There are seasonal fluctuations, and the results were impacted by national outbreaks of respiratory related viruses in the last quarter of 2024. However, the project team identified by engagement with the GP practices visited and engagement events that continued patient engagement could make a difference over a longer period. A major risk for acute hospitals is that winter pressures are increasing and expanding throughout the year. Prevention interventions could make a massive difference to this pressure, health inequalities in communities and patient care within the community.

Conclusions:

The project was useful in that it provided an opportunity for the COPD clinical nursing team to engage in the community. Good inhaler technique and the use of the right inhaler for the right person is essential to prevent COPD patients visiting an acute hospital.

Getting the advice first time could have a massive impact for patients' health in the community and the engagement undertaken supports the objectives of the team to reduce improve the life chances of COPD patients and reduce visits and their length of stay at the GEH.

Greener inhalers are suitable for some patients but not all at present. During the project period the team also met with one of the main inhaler manufacturers Astra Zeneca to see what manufacturers were doing to reduce the carbon footprint of their inhalers. Astra Zeneca are working towards developing greener propellant for their own PMDI inhalers. They are planning to marketing this new propellant which equals DPI carbon footprint at a similar cost to their PMDI version. This is expected to be on the market in 2025 if approved, closely followed by Chiesi (manufacturer). Both of these feed into Asthma and COPD inhaler prescribing. Future technologies will also see lower carbon alternatives In the future and emerging technologies like COPD biologics but all manufacturers will need to make these changes to demonstrate a difference in reducing carbon.

The key learning that came from this project was that there is interest and an appetite to learn more about sustainable care for COPD patients. Given the short timeframes though the team did manage to engage at several events, engage with patients and visit the two GP practices include in this survey. However, the short time for this project meant that measuring any changes following the project would take longer to see any visible change. Also, the increasing pressure on the NHS means that more patients are visiting hospital than ever before and it is difficult to measure any reductions in patients visits at present due to these increases in system pressures. Also, during the project there was an increase in respiratory illnesses in the community during the winter of 2024/25.

Costs for treatment varies between different reports and it was felt by the project team that a full review of current costs for the treatment of COPD patients may provide a holistic view of patient costs but also cost and carbon savings if more interventions have an impact on good inhaler technique and greener options for patients.

Reductions in patient travel through more confident interventions would also reduce CO2 but also reduce the cost for patients and their families who visit, particularly for those who live in health inequality areas who may find it harder to visit the hospital setting for appointments or visits.

Another key learning outcome was that patients, pharmacists and clinicians do like to stick with the medicines they are used to using or prescribing and continued engagement is essential to provide the knowledge and understanding of different inhaler devices and the benefits to make that step change towards more sustainable inhaler health care but still continue to focus on getting the right inhaler for the patient.

To ensure lasting change continued community involvement to spread the learning and changing advice would be required to close the learning gaps between Primary and Acute care settings. Further engagement events are planned to follow the end of this project to continue to support COPD patients at the hospital, at home and in the community.

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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.

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Template References

- SQUIRE | SQUIRE 2.0 Guidelines (squire-statement.org)
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