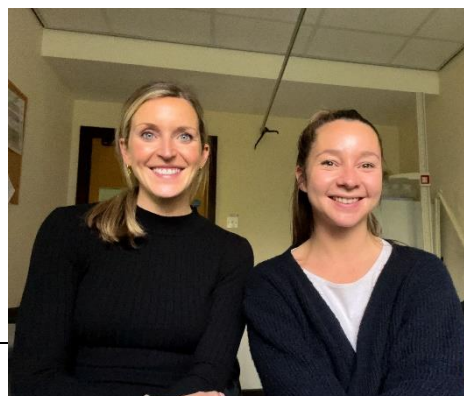




## INCORPORATING DECARBONISATION INTO PHARMACIST-LED ASTHMA CLINICS, PHARMACY TEAM

### TEAM MEMBERS:

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### Background:

The NHS Wales decarbonisation strategic delivery plan (2021-2030) outlines methods in which to reduce the carbon footprint of NHS Wales. Pharmacy Teams across Acute Care, Primary Care and Community Pharmacy have a significant role to play as pharmaceuticals are the second highest contributing factor towards the NHS carbon footprint, and the largest contributor in General Practice with medicines accounting for 25% of emissions within the NHS.

It is estimated that Metered Dose Inhalers (MDIs) currently contribute 3.5% of the carbon footprint of the NHS<sup>2</sup>. MDIs contain a propellant hydrofluoroalkane (HFA) 134a which is a potent greenhouse gas; even when these inhalers are sent to landfill the HFA's can slowly leak out of the inhalers and contribute to global warming.

In contrast, dry powder inhalers (DPIs) and soft mist inhalers (SMIs), do not contain HFA propellants, and thus have a significantly lower carbon footprint than MDIs. Below is an example of a simple inhaler switch from a Fostair MDI to a Fostair Nexthaler (DPI), which is the exact same inhaler in terms of medicines included, but a different device.

Switch From	Switch To	Potential Carbon reduction	Approximate Cost implication	Comments
Fostair MDI® 100/6	Fostair NEXThaler® 100/6	86gCO <sub>2</sub> e/puff	Cost neutral	Ensure patient has sufficient inspiratory rate
200/6	200/6	110gCO <sub>2</sub> e/puff		

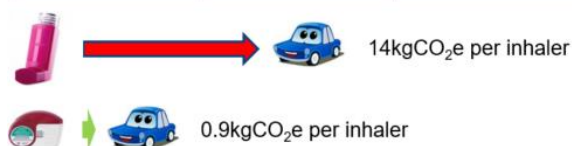
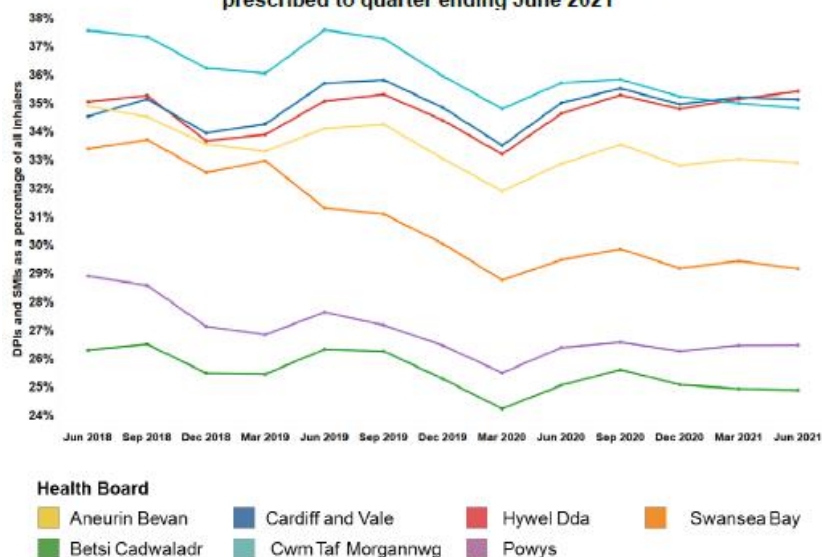


Figure A: Example of carbon footprint saving from switching an MDI to an equivalent DPI.



A new National Prescribing Indicator (NPI) for 2022-2023 has therefore been added which encourages a reduction in prescribing of MDI's in favour of DPI and SMI prescribing<sup>5</sup>. The graph below illustrates where Swansea Bay University Health board (SBUHB) currently sit within Wales when it comes to % of DPI and SMI prescribing.

**Figure 16. Trend in the percentage of DPI and SMI as a percentage of all inhalers prescribed to quarter ending June 2021**



As illustrated above, Swansea Bay University Health-board (SBUHB) has approximately 70% of inhaler prescriptions prescribed as MDIs resulting in some of the highest prescribing proportions within the country (3<sup>rd</sup> highest in Wales). In contrast, there are some countries in Europe (e.g. Sweden), where only 13% of their inhaler prescriptions are prescribed as MDIs. There is therefore a need to focus our attention on reducing the carbon impact of inhaler prescribing within our health-board. The ambitious goal set out by NHS Wales is to achieve an 80% prescribing rate of DPI and SMIs by 2025<sup>8</sup>.

From a clinical perspective a UK observational study found high levels of short-acting beta-agonist (SABA) over-prescribing. An observational study conducted in East London reported that a quarter of patients with asthma were overprescribed their SABA inhalers (defined as 6 or more inhalers per year). Overuse of SABAs may suggest suboptimal asthma control<sup>3</sup> and is also associated with a high carbon footprint. There is therefore a clear need to improve our patient's asthma care in SBUHB, both from a clinical and environmental perspective. Wales, and SBUHB in particular, have a lot of work to do when it comes to prescribing inhalers more sustainably.

This project aims to focus on developing economical and environmentally sustainable ways on improving this care. Pharmacist-led decarbonisation focused asthma clinics have now been established as a pilot within one surgery in Swansea. This surgery has a population of 7581 patients, 526 of which are registered with asthma. Out of the 526 with asthma, 473 patients (90% of patients) have been highlighted as being overdue an asthma review (i.e. have not had an asthma review for over 12 months)



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## Specific Aims:

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These clinics are aimed at improving asthma control and achieving the NPI target for an increase DPI and SMI prescribing. The clinics focus on those patients receiving >6 salbutamol inhalers/annum, as overuse may suggest suboptimal asthma control <sup>[3]</sup> and is associated with the largest carbon footprint.

- improve asthma care and disease control by providing and up-to-date face to face review (and up-titrating or down-titrating therapy where appropriate).
  - increase the percentage of DPI's and SMI's prescribed vs MDI's in line with the new NPI for 2022-2023.
  - promote prudent health-care by ensuring patients are empowered and involved in the decision making process for their treatment.
  - reduce the carbon footprint of inhalers prescribed measured in g/CO<sub>2</sub> equivalent
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## Methods:

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Face to face clinics were set up with a focus on patients receiving >6 salbutamol inhalers/annum. This involved liaising with the GP practice manager, nursing staff, administrative staff and the lead GPs to obtain permission for clinics to be held, and to organise a suitable clinical space and day of the week to see patients face to face. The administrative staff at the surgery assisted in ensuring there were prescriptions pads available for pharmacist independent prescriber use, and that the pharmacist was set up as a prescriber on the GP computer system (VISION).

Originally we set out to review both asthma and COPD patients, however we were asked by the surgery staff to focus on those patients with a diagnosis of asthma, as the practice nurse at the surgery was currently working her way through their cohort of COPD patients. Patients were identified by running a search on the GP VISION system for all salbutamol inhalers issued in the past 12 months. This data was then exported to and analysed using EXCEL database to filter off patients receiving >6 SABAs per year. A total of 333 patients were identified as receiving >6 salbutamol inhalers in the previous 12 months.

We then worked our way from the top of the list, focusing on those patients who had received the most SABA inhalers per year. Patient's clinical history was initially reviewed by the pharmacist and patients were booked in to clinic slots via telephone call with pharmacist/pharmacy technician. Clinical history involved checking the respiratory diagnosis, the current treatment, and the number of steroid courses issued in 12 months as all indicate poor disease control. Patients were sent an SMS reminder of their clinic appointment at the start of the week. Asthma reviews were conducted utilising a pre-populated proforma (Appendix 1), which was created by the pharmacist independent prescriber (IP), with input from health-board respiratory nurses and pharmacy colleagues. This proforma included the novel addition of an inspiratory flow assessment utilising an In-check dial G16 device. This device allows for inspiratory flow to be measured, to ensure that the patient is able to safely use a DPI, which we know require a higher inspiratory flow than MDIs due to the lack of propellant within these devices. This device can also be used for correction in inhaler technique, by allowing the patient to practice how to 'breathe in/inhale' depending on the inhaler device chosen for them i.e. hard and deep for DPI's or slow and steady for MDI's.

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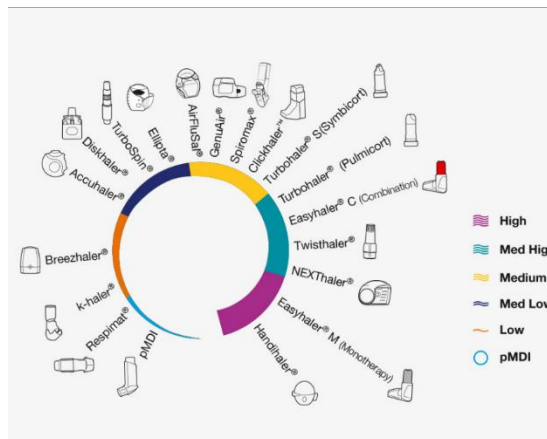


Figure B: In-check dial G16 device

There was a focus on decarbonisation when changing inhaled therapy, utilising the All Wales adult asthma guidelines to guide management and therapy choice<sup>1</sup>

- Switch to DPI if possible (if patient has required inspiratory flow: generally between 30-90L/min).
- Switch to a lower carbon intensive MDI if a DPI was unsuitable (i.e. due to poor inspiratory flow or patient choice).
- Adjust dosage regimen to reduce inhaler burden e.g. 50mcg 2 puffs BD to 100mcg 1 puff BD, as this in itself will result in reductions in carbon footprint.
- Educate patient on inhaler carbon footprint and importance of inhaler recycling to community pharmacies to achieve long-term sustainability (leaflet by Greener Practice provided).
- Utilise MART (Maintenance and Reliever Therapy) regimes where appropriate, to reduce SABA use.

The pharmacist IP will make prescription changes needed without the need for GP input – allowing higher value interventions to be made, thus following the ethos of the ‘Healthier Wales’ document [7].

All patients will be counselled on how to use their new inhaler device by the pharmacy technician, thus ensuring compliance and improving asthma control through improved inhaler technique. Inhaler technique can also be re-iterated by incorporating the Right Breathe application on smart phones, which includes videos on correct inhaler technique.

Follow-up telephone consultations were arranged 6 weeks post intervention to ensure that the patients are managing well with their new inhaler, and to rule out any issues. These telephone consultations were conducted by the pharmacist and/or pharmacy technician.

**Future plans/goals:**

Future clinic plans also include the introduction of the pharmacy technician role to clinic. The aim is to utilise the pharmacy technician in the clinic set-up and the face to face appointment with the patient, with pharmacist IP input only needed for prescription changes or more complex queries.



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This will be measured by capturing time taken with pharmacist versus time taken with technician (in minutes) over the space of 6 months. The technician will undergo competency assessment to conduct the asthma review and utilise the In-check dial device.

This additional clinic set up will allow for higher value interventions to be made and will improve economical sustainability, as the goal is for the time spent with the technician to increase, and time spent with the pharmacist IP to reduce. This will ultimately free up more pharmacy IP time to spend up-scaling this clinic set-up.

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### Measurement:

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Additional outcome data captured via excel spreadsheet, including:

- Patient details
- Number of salbutamol inhalers issued/annum
- Number of oral steroid courses in 12 months
- Number of hospital admissions related to asthma in the past 12 months
- Royal colleague of physicians (RCP) 3 questions for asthma control
- Inspiratory flow measurement (measured in L/min)
- Original inhaler prescribed
- Newly prescribed inhaler
- Education provided around carbon impact of inhalers & inhaler recycling
- Time taken to conduct clinic (Pharmacist time and technician time)
- If a referral for spirometry was made

The above data collection then allowed us to record the following outcome data:

- % reduction in carbon footprint made during the clinic period (10 week-period)
- % patients educated on inhaler carbon footprint and recycling
- % increase in DPI inhalers vs MDI inhalers
- Number of patients referred for spirometry

Future data collection

The 10 week clinic period block was too short to measure long-term outcome data. However as the clinic progresses we hope to also capture the following:

- Increased number of patients with up-to date asthma review.
- A reduction in the number of salbutamol inhalers issued in 12 months per patient.
- A reduction in hospital admissions in 12 months per patient.
- Improved symptom control of asthma, recorded using the Royal College of Physicians (RCP) 3 asthma control questions
- Time pharmacist taken to conduct clinic versus technician – with the aim of increasing time spent with technician to promote more economical working.

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### **Patient outcomes:**

The ten-week period for the project was too short to provide direct patient outcome data, however as the clinic progresses, we hope to measure the clinical impact through obtaining the following data: number of salbutamol inhalers used per year, number of hospital admissions, number of oral steroid courses needed per year, and improvement in patient symptoms through utilising the RCP 3 questions for asthma control.

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Standards are met through utilising a pre-set asthma proforma in clinic, and through using the All Wales Adult Asthma guidelines when it comes to management and treatment choice

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***Population outcomes:***

Population outcomes as a result of our project cannot be measured however we aimed to improve health-inequalities by

- promoting the All Wales asthma hub app to all patients with a mobile telephone. This smart app allows patients to monitor their own asthma symptoms, and thus become better educated on asthma control and when to seek advice.
  - promoting healthier lifestyles during the clinic, e.g., we asked every patient regarding their smoking status, and signposted when needed to suitable services.
  - Reminding all patients on the importance of vaccination in disease prevention, particularly as asthmatics are more vulnerable to flu and COVID-19.
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***Environmental sustainability:***

Progress is measured by monitoring the reduction in gCO<sub>2</sub>e over time, and the % increase in DPI/SMI versus MDI prescribing. This data is taken from MedOptomise (cloud based medicines optimisation tool), which incorporates emission factors from PrescQIPP, available via the PrescQIPP 295 bulletin<sup>4</sup>. and the data is updated every 3 hours, allowing us to provide the total carbon footprint savings in gCO<sub>2</sub>e over the 10-week period, specifically for inhaler switches (MDIs switched to DPIs or MDI switches to lower carbon intensive MDIs). This data can also be expressed as a % carbon footprint saving during this time period, as well as an equivalence in terms of car journey (based on the average car emissions 100g/km).

We worked closely with the founder of MedOptomise to include carbon footprint data on the software. This software was originally designed to illustrate cost savings from medicine switches made by the medicines management team, however we have worked together to create a software that now enables the health-board to monitor it's carbon footprint savings (in gCO<sub>2</sub>e) in real time.

Although we were unable to measure the potential carbon reductions from inhaler returns to pharmacies during this 10 week project, we educated 100% of our patients on the importance of inhaler recycling. At the beginning of the project period, 0 patients were aware of the safe disposal option for inhalers.

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***Economic sustainability:***

There is an accepted cost impact on switching from MDIs to DPIs, as DPIs are generally more expensive inhaler devices.

The long-term goal of these clinics also includes more involvement of the pharmacy technician, meaning less pharmacist time spent on the clinic, which makes the clinic set-up more economically sustainable and allows higher value interventions to be made.

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***Social sustainability:***

Patient feedback was obtained during clinics.

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The long-term plan of these clinics to involve the pharmacy technician workforce will also lead to better job satisfaction, and development of the pharmacy technician role.

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## Results:

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### **Patient outcomes:**

Asthma reviews should be conducted annually, however 90% of the patients in the surgery had not had an asthma review for >1 year, likely due to the COVID-19 pandemic and lock-down measures. This clinic set-up has therefore helped with the pressures faced in the primary care sector, ensuring patients are seen in a timelier manner. During our 10-week period, we saw asthmatic patients who had not had a face to face review for a number of years, and consequently were uncontrolled and prescribed medications that are no longer recommended on the All Wales adult asthma guidelines.

The clinic set-up has made asthma reviews more patient centred. We utilise 'dummy' inhalers to show patients what options they have for their asthma treatment, thus making the clinic more prudent as patients are involved in the decision-making process behind their inhaler choice. This empowers patients to take control of their asthma again. Improving patient's knowledge on their asthma management will help reduce the need for GP contact time in the long-term, as patients will be better equipped with knowledge on how to look after themselves and what to do during an exacerbation.

As previously mentioned, the 10-week clinic period was too short to measure all patient outcomes. At the time of writing 9 patients have received a 6-week follow-up telephone consultation, and all 9 (100% of patients) were happy to continue with their new environmentally safer inhaler. All patients contacted felt that their symptoms had either improved or remained much the same, 0 patients reported worsening of symptoms. Patient quotes from the project period:

*"I feel much better, I have gone from using my salbutamol 4 times every day to once a day, and I no longer wheeze when I talk!" - MC (24 year old female)*

*"I usually hate coming to the GP surgery and tend to avoid these appointments. Thank you for taking the time to explain to me what my inhalers were for – I feel like I understand my asthma better" - MV (59 year old female)*

*"Fantastic progress, thank you for your work. Looking forward to the end outcomes"- GP practice manager*

Out of a total of 29 patients seen in clinic over the 10 week period, only 3 patients had insufficient inspiratory flow to be switched to a DPI (10% of patients) when assessed using the in-check dial device. These patients were therefore offered a lower carbon MDI, and provided a spacer device to improve inhaler technique. This result proves that the majority of adults with asthma are able to safely use a DPI, and that the target of achieving 80% of inhaler prescriptions prescribed as DPI's by 2025 is achievable.

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**Number of patients referred for spirometry for accurate diagnoses:** With the pressures that GP surgeries are under and the high demand for respiratory reviews post COVID-19 pandemic, these clinic appointments have ensured that patients have been seen with specialist input and have been given the opportunity to be referred for accurate diagnoses in a timely manner. At the end of the 10-week period, a total of four patients have been referred by the pharmacist IP for spirometry, to obtain accurate diagnosis and therefore ensure that they are managed appropriately.

**Patients referred for secondary care opinion:** As per the All Wales adult asthma guidelines, referral to secondary care should be considered if the patient displays any of the following: complex comorbidity, suspected occupational asthma, poor control following step 4 of asthma treatment, 2 or more steroid courses/year despite optimising therapy in primary care. During the clinic period the pharmacist IP identified one patient who was on step 5 asthma management and still experiencing uncontrolled asthma. This patient had not had an asthma review since 2015. Given the complex history and ongoing symptoms, this patient was referred to a secondary care asthma clinic for specialist input.

***Environmental sustainability:***

Please find below a screen grab from MedOptomise, which shows our reduction in gCO<sub>2</sub>e and % carbon footprint reduction over the 10 week period as a result of interventions made to 29 patient’s inhaler therapy.

IMPACT OF TEAMS WORK			
<b>ORIGINAL INHALER CARBON</b> <b>480,025</b> FOOTPRINT (g CO <sub>2</sub> e)	<b>SWITCHED INHALER CARBON</b> <b>100,787</b> FOOTPRINT (g CO <sub>2</sub> e)	<b>CARBON SAVING</b> <b>379,238</b> g CO <sub>2</sub> e	<b>% REDUCTION</b> <b>79.0%</b> IN CARBON FOOTPRINT

This saving of 379.2 kgCO<sub>2</sub>e is based on one inhaler switch for each of the 29 patients. Projected across a year, each patient will receive one inhaler per month on average, increasing our savings to **4,550.856 kgCO<sub>2</sub>e per year**. This is equivalent to 13,107.3 miles driven in an average car.

***Projected savings across the HB.***

Our savings equate to an average of 156.9 kgCO<sub>2</sub>e per patient. Swansea Bay UHB supports a population of 400,000 individuals, of which 7.2% (28,800 people) are registered with asthma (according to the primary care information portal). Assuming similar changes could be made to the full 7.2%, we anticipate savings of up to 4,518,720 kgCO<sub>2</sub>e per year. This data may be underestimated if patients with asthma haven’t been coded correctly in the primary care database, or overestimated as it includes children, for which suitability to change inhalers requires different clinical considerations. However, of note, guidance has recently updated for patients over 6 years of age, who can now be prescribed DPIs. This saving is also a projection based on a small cohort of patients, and therefore may differ in actual practice. A large scale review on an individual patient basis would be required to determine true figures.







IMPACT OF INHALER REVIEWS ON CARBON FOOTPRINT

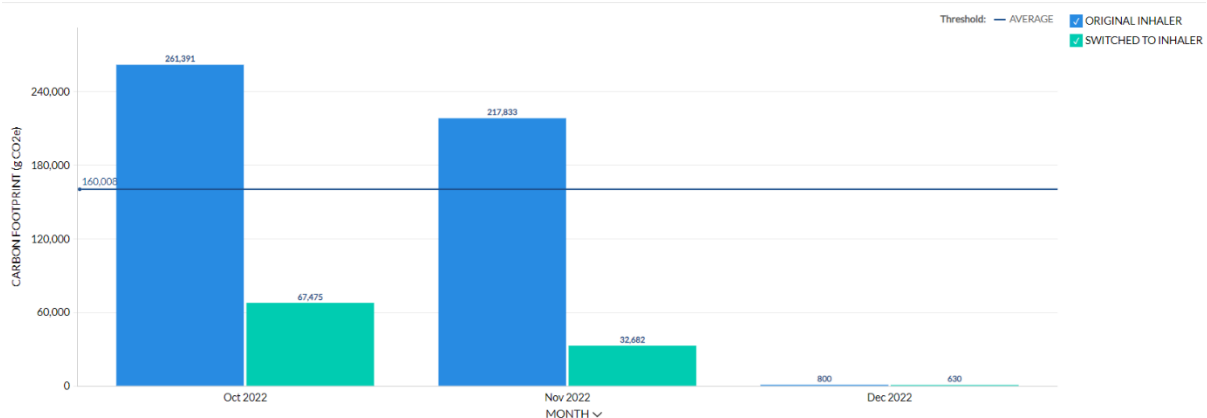


Figure C: Graph illustrating the reductions in carbon footprint from inhaler switches each month

The SPIRA decarbonisation dashboard<sup>9</sup> can be used to monitor carbon footprint reductions and % DPI increases at a health-board, cluster and GP practice level. Unfortunately, there is a 3 month lag with this data and therefore this data source could not be used to illustrate progress with this project, however it is a useful source for monitoring long-term progress and comparing our efforts against other HB's.

We predict that at least 80% of patients seen will now continue to return their used inhalers to pharmacies for incineration. This data was based on a questionnaire provided to patients at the end of the clinic session. We were unable to measure the carbon impact of increased inhaler returns during this project period, however there is currently an audit being undertaken in the Upper Valleys cluster in Swansea which involves measuring the impact of inhaler recycling.

**Economic sustainability:**

Although some inhaler changes made will be at an extra cost – the overall target of reducing carbon emissions was achieved as noted above.

This project has proven that clinics can be undertaken by pharmacist/technicians without the need for GP time, which in itself is more cost-effective and will free up GP time for more complex patients.

Having up-to-date asthma reviews also means that patients are better educated on their disease and have optimum treatment prescribed – this in turn will result in less SABA use, less exacerbations and hopefully less hospitalizations. All of which will help with economic sustainability.





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### **Social sustainability:**

Throughout the 10 week period we received very positive feedback from our patients, not only because they were being seen face to face, but also because they felt that their condition was explained to them thoroughly, and thus education around asthma and its management has improved. We acknowledge that this is likely due to having more contact time per patient consultation than when seeing a general practitioner. The clinic may lead to patients undertaking other sustainability behaviours, such as recycling inhalers.

*“Since being to clinic I have taken my unused inhalers back to my pharmacy – I can’t believe I didn’t know to do this before. It’s embarrassing how many I had lying around my house!” - DE (29 year old female)*

The clinic set up has potential to enhance job satisfaction for many.

*“This project has made me more motivated to explore other roles that technicians can work towards. The role has been challenging, but it’s exciting to see how we can get involved in patient care in the future” - Rebecca Gillman (pharmacy technician):*

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### **Discussion:**

The primary focus of reducing the carbon footprint of inhaler prescribing was achieved during this project period, and the results highlight that continued work in this area can lead to huge carbon footprint reductions for the health-board. There is also early indication that clinical outcomes for the patients reviewed have also improved. Saving will be underestimated as they do not account for reduced exacerbations and associated costs (e.g., admissions) and increased recycling.

**Challenges:** To ensure that these clinics are scalable across all GP practices in Swansea, nursing staff and pharmacy technicians will need training/education around the decarbonisation of inhalers, and utilising the In-check dial device for measuring inspiratory flow. This will unlikely be much of a barrier for nursing staff, but will require more competency assessments and training for the pharmacy technicians, who historically have not undertaken clinical roles.

In terms of health and safety, by incorporating the in-check dial device we ensured that patients would be able to safely use a DPI. We would not recommend blanket switching of inhalers to a DPI without utilising this assessment. We also ensured that all patients were given adequate inhaler technique counselling and are followed-up at 6 weeks to rule out any issues.

Logistically, we were fortunate that the surgery in which the project took place had sufficient clinical space to allow us to run these clinics face to face. However, we appreciate that this may not be the case in all GP surgeries. The administrative side of the clinic, which included being set up as a prescriber on the GP system and obtaining green prescription pads was time consuming, and is a factor that needs consideration for future clinic set ups.

Lastly, one of the factors that make these clinics economically sustainable was the use of a pharmacist IP, meaning no GP time was needed for prescribing. Again, this may not be achievable in all GP surgeries, where practice nurses or practice pharmacists are not IPs.

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There is however scope for all practice nurses across SBUHB to include a decarbonisation focus during their asthma and COPD reviews, to help achieve the long-term goal of increasing the % of DPI prescribing.

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### Conclusions:

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The success of this project was multifactorial. The drive and ambition to prescribe inhalers more sustainably had a huge impact on the outcome of the data and the success of the project, and was demonstrated by both the pharmacist IP and the pharmacy technician involved in the decarbonisation clinics.

In addition, support from the administrative staff at the surgery was paramount in helping with the initial setup of the clinic, and in ensuring that the pharmacist IP was able to utilise their qualification without the need for GP input. We would also like to acknowledge one of the GP leads, who supported our project and who was happy to deal with any complex or unwell patients identified during this project period. This provided reassurance and ensured that we considered the health and safety of our patients first.

**Key learning when things didn't go well:** As with all prudent prescribing, not all patients are as willing as others to switch their inhalers to more environmentally friendly devices. During this project period we were very fortunate that this only happened on one occasion. In these instances, if patients have been provided with all the evidence and benefits and still wish to not change device, we must appreciate and accept the patient's decision. Ultimately, this leads to an increase in trust between the clinician and the patient, and improves the prudent relationship.

**What steps have been taken to ensure lasting change:** By ensuring that patients are satisfied with their new inhaler at 6 weeks post intervention, and that their asthma remains controlled, we can be assured that the patients will not request to change back to their original device. We encouraged all of our patients to return their used inhalers to the pharmacy, which hopefully in the long-term will improve the % of inhalers recycled.

**Does the organisation want to build on/expand the initiative:** With utilising pharmacy technicians as part of the clinic set up, the clinics are scalable to roll out to other GP practices. Additionally, practice nurses can be educated on the additional decarbonisation step included within the asthma review, to ensure that these successes can be achieved across all GP practices in Swansea.

To conclude, the project has been successful in reducing the carbon footprint of inhaler prescribing. The success achieved in such a short time period highlights the huge opportunity that Swansea bay health-board has in reducing the carbon footprint of inhaler prescribing, and in achieving the ambitious goal of having 80% of inhaler prescriptions prescribed as DPI or SMIs by 2025.





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9. [SPIRA - Decarbonisation Dashboard](#)





**Appendix 1: Asthma proforma utilised in clinic**

Patient name: DOB: Allergies: Contact telephone:	
Royal college of physician 3 questions ( <i>use the template available on VISION</i> ):	
MRC questionnaire if patient also has a diagnosis of COPD ( <i>use the template available on VISION</i> ):	
Recent peak flow readings if available ( <i>ask patient if they monitor peak flow at home and record recent readings</i> )	
What current therapy is the patient on ( <i>regular inhalers and oral asthma therapy e.g. montelukast</i> )	
Is patient using inhalers as prescribed ( <i>compliance check</i> )	
How many salbutamol inhalers in the past 12 months ( <i>if patient unsure check GP prescribing system</i> ): <i>Use this opportunity to discuss switch from Ventolin to Salamol</i>	
How many oral steroid courses in the past 12 months ( <i>check GP prescribing system/ discharge summaries from hospital/out of hours prescriptions</i> ): <i>Patients receiving 2 or more per year despite adherence with maintenance therapy should be referred to secondary care</i>	
Any hospital admissions because of asthma in the past year (Y/N):	
Any specific triggers for asthma ( <i>e.g. pollen, pollution, exercise, fumes etc.</i> )	
Smoker Y/N (if Y how many/day) <i>Complete this as part of the health-check (apple) on VISION</i>	
Inspiratory flow check completed using in-check dial device ( <i>record value in L/min</i> )	
Discuss decarbonisation – <i>ask patient re their awareness of inhaler impact on the environment. Offer patient leaflet on inhalers and the environment plus inhaler recycling.</i>	
Rule out other exacerbating factors: <ul style="list-style-type: none"> <li>• Nasal symptoms</li> <li>• Reflux</li> <li>• Sleepiness / sleep apnoea</li> </ul>	
Outcome of review (document on medoptomise) <ul style="list-style-type: none"> <li>• Step-up in therapy</li> <li>• Step-down in therapy (if complete asthma control over a 3 month period)</li> <li>• Inhaler counselling</li> <li>• Smoking cessation advice/signposting</li> <li>• Decarbonisation (switch to lower GWP inhaler):</li> <li>• Personalised asthma action plan discussed (see below)</li> </ul>	

Asthma action plan:

Personalised asthma action plan in place: [asthma-action-plan-adult-2021.pdf](#)

Peak flow advice:

Best peak flow should be ascertained when treatment is optimised and symptoms are stable. Best peak flow is more accurate than predicted peak flow.

Trigger points should be individualised but as a guide oral steroids are usually required when peak flow reaches  $\leq 60\%$  of best and emergency review is usually necessary when peak flow reaches  $\leq 50\%$  of best.

<https://awttc.nhs.wales/files/guidelines-and-pils/all-wales-adult-asthma-management-and-prescribing-guideline-pdf/>



**AsthmaHub**  
Get your patients to  
download the AsthmaHub

