

Quality Improvement Project

Improving Respiratory Care with Reduced Carbon Footprint For Greener Norwich



Background

- ✓ The NHS England Long Term Plan 2019 outlined the national targets of lowering the carbon footprint by 51% .¹
- ✓ Pressurised Metered Dose Inhalers (pMDI) accounted for 3% of NHS Carbon Footprint.²
- ✓ A 28kg CO₂e inhaler is equivalent to gas emission of driving 175miles from London to Sheffield.²
- ✓ pMDIs make up 70% of inhalers in the UK where Asthma and COPD mortality is one of the highest in Europe.²
- ✓ Norwich PCN aimed to improve respiratory care via inhalers with lower CO₂e by engaging 21 medical practices and local pharmacies to reduce the carbon impact of the inhalers.
- ✓ This QI project runs in 2 phases :
Phase 1 : From 01/04/2022 to 31/03/2023;
Phase 2: From 01/04/2023 to 31/03/2024

Aims

- ✓ Decrease the use of pMDI inhalers by 5 – 10% via prescribing dry powder inhalers (DPIs) and soft mist inhalers (SMIs) where clinically appropriate.
- ✓ Prescribe pMDI with lower CO₂e if pMDI is required by patients reducing mean CO₂e by 5-10%.
- ✓ Increase the number of inhalers returned and disposed of safely via local pharmacies to reduce environmental impact.

Method

1. Send letters/text messages to patients regarding changing to greener inhalers.
2. Invite eligible patients for respiratory reviews/ consultations regarding greener inhaler options.
 - Criteria:
 - High reliance on Salbutamol
 - Patients on highest CO₂e inhalers (Ventolin pMDI, Flutifoem MDI, Symbicort pMDI)
3. Liaise with community pharmacies to support patients with the change of inhalers via New Medicines Service.
4. Add script notes to remind patients to return all used/unwanted inhalers to pharmacies for safe disposal.
5. Liaise with local community pharmacies to encourage patients to return all used/unwanted inhalers to pharmacies for safe disposal.

Results³

1st indicator:

The Mean carbon impact (kg CO₂e) per salbutamol inhaler:

- Reduced from 22.21 % to 20.51 % in Phase 1, further reduced to 18.79% in June 2023 in Phase 2.
- Total reduction: 3.4% (Fig 1, Table 1 & 2)

2nd indicator:

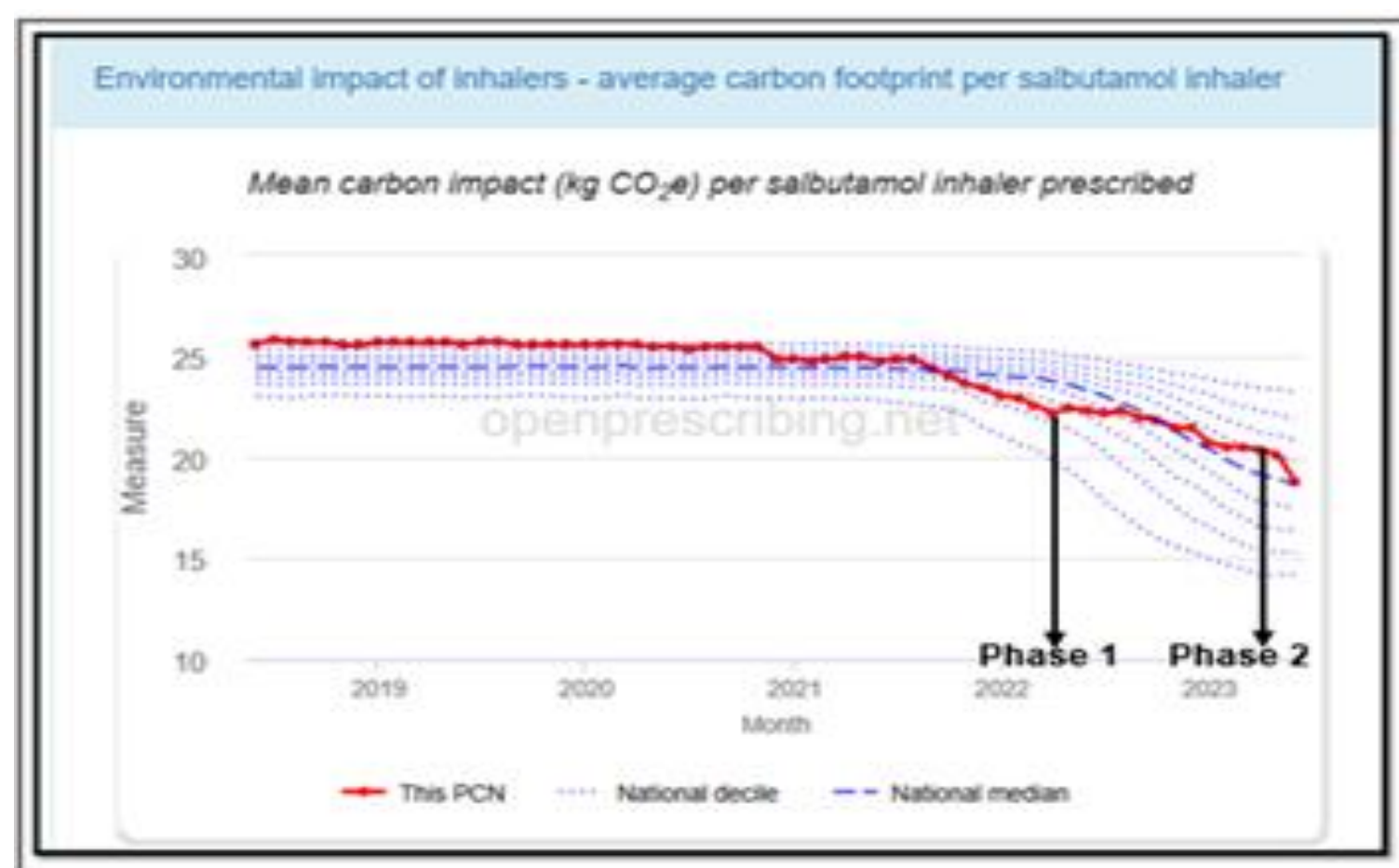
The MDIs prescribed as a proportion of all inhalers

- Reduced from the highest of 55.51% (June 2022) to 51.81% (Mar 2023) in Phase 1, further reduced to 50.79% (June 2023) in Phase 2.
- Total reduction: 4.7% (Fig2, Table 3 & 4)

3rd indicator:

The number of conversations between community pharmacies and patients about safe disposal of inhalers - reduced from 2685 reported by 46 pharmacies (Mar 2022) to 1026 reported by 37 pharmacies (Mar 2023). (Table 5)

Figure 1: Mean carbon impact (kg CO₂e) per salbutamol inhaler prescribed (Norwich PCN) Jan 2018 – June 2023



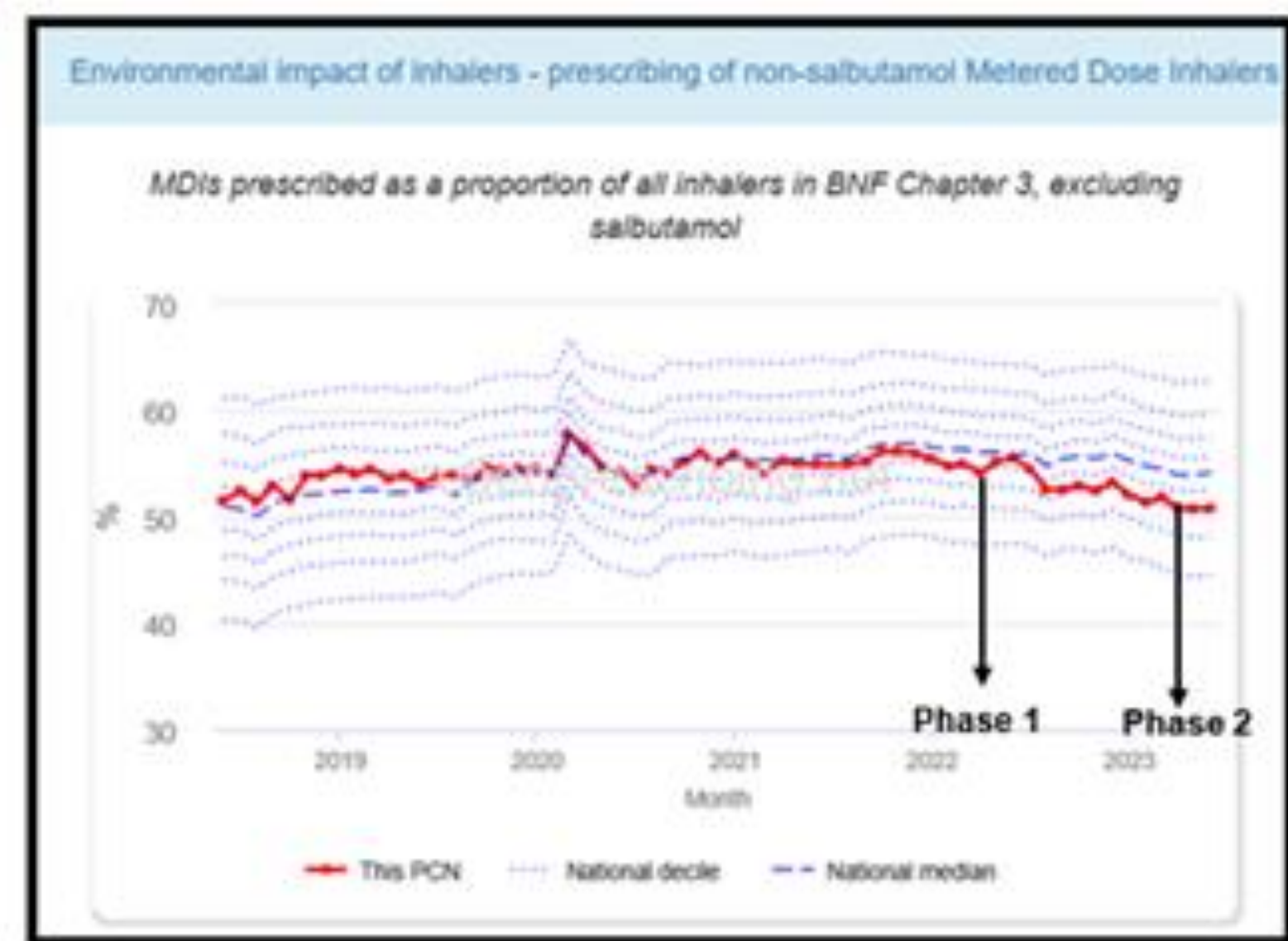
Date	Mean Carbon impact (kg CO ₂ e)	Percentage
01/04/2022	151716.91	22.21
01/03/2023	146016.31	20.51

Table 1: Mean carbon impact (kg CO₂e) per salbutamol inhaler prescribed in 01/04/2022 and 01/03/2023 (Norwich PCN) (Phase 1)

Date	Mean Carbon impact (kg CO ₂ e)	Percentage
01/04/2023	129369.19	20.37
01/05/2023	135876.96	20.15
01/06/2023	129877.82	18.79

Table 2: Mean carbon impact (kg CO₂e) per salbutamol inhaler prescribed from 01/04/2023 to 01/06/2023 (Norwich PCN) (Phase 2)

Figure 2: MDIs prescribed as a proportion of all inhalers in BNF Chapter 3, excluding salbutamol in Norwich PCN from Jan 2018 to June 2023



Date	Number of non-Salbutamol pMDI	Total number of all Non-Salbutamol Inhalers	Percentage of Non-Salbutamol pMDI
01/04/2022	4838	8942	54.10%
01/05/2022	5030	9120	55.15%
01/06/2022	4998	9004	55.51%
01/07/2022	4658	8549	54.49%
01/08/2022	4833	9199	52.54%
01/09/2022	4681	8908	52.55%
01/10/2022	4836	9137	52.97%
01/11/2022	4953	9441	52.46%
01/12/2022	5247	9853	53.25%
01/01/2023	4796	9217	52.03%
01/02/2023	4420	8610	51.34%
01/03/2023	4976	9596	51.85%

Table 3: MDIs prescribed as a proportion of all inhalers excluding salbutamol in Norwich PCN from 01/04/2022 to 01/03/2023 (Phase 1)

Date	Number of non-Salbutamol pMDI	Total number of all Non-Salbutamol Inhalers	Percentage of Non-Salbutamol pMDI
01/04/2023	4329	8516	50.83%
01/05/2023	4642	9149	50.73%
01/06/2023	4704	9261	50.79%

Table 4: MDIs prescribed as a proportion of all inhalers excluding salbutamol in Norwich PCN from 01/04/2022 to 01/03/2023 (Phase 2)

Year	Number of pharmacies in Norwich	Number of conversations reported
Oct 2021 - Mar 2022	46	2685
Oct 2022 - Mar 2023	37	1026

Table 5: Number of conversations regarding returning inhalers to pharmacies for safe disposal reported to NHS Business Service Authority

Discussion

- ✓ It was encouraging to see a total of 3.4% of reduction in the 1st indicator and 4.7% of reduction in the 2nd indicator achieved for Norwich PCN.
- ✓ The results were greatly improved in the early stage of Phase 2 after addressing the key issues in Phase 1.
- ✓ **The Key Actions Following the Learning from Phase 1:**
- ✓ 1) Reinforcing the engagement from all parties including prescribers from medical practices and community pharmacies by sending recorded presentation about the QI project.
- ✓ 2) Liaising with manufacturers, local suppliers & local pharmacies to ensure stock availability for patients to obtain the greener inhalers without delay.
- ✓ 3) Improving the understanding of environmental impact of inhalers for all healthcare professionals by signposting prescribers to the respiratory training events organised by PresQipp & local formulary.
- ✓ **The Next Steps In Phase 2 :**
- ✓ 1) Liaising with local ICB Medicines Optimisation Team to organise face-to-face respiratory training events to further support respiratory practitioners in line with the latest respiratory guidelines.
- ✓ 2) Liaising closely with medical practices & local community pharmacies by providing training materials, posters and labels to further increase public awareness.

Conclusion

- ✓ Improving respiratory care with reduced carbon footprint is achievable.
- ✓ The success of the QI project requires the full engagement from all parties - local ICB, healthcare professionals, local medical practices, community pharmacies and patients.
- ✓ Ongoing training on respiratory care using greener inhalers following the latest guidelines is essential for healthcare professionals and patients.
- ✓ Stock availability is also a key element in the success of the project.

Reference

1. NHS England. The NHS Long Term Plan, Jan 2019. [NHS Long Term Plan v1.2 August 2019](#)
2. PresQipp Bulletin [295](#). Inhaler carbon footprint briefing 2.0 ([prescqipp.info](#))
3. OpenPrescribing.Net. [Prescribing measures for NORWICH PCN | OpenPrescribing](#)