

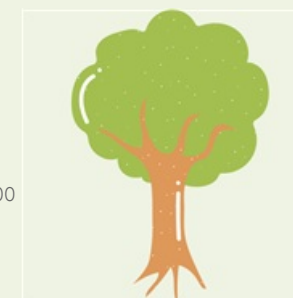
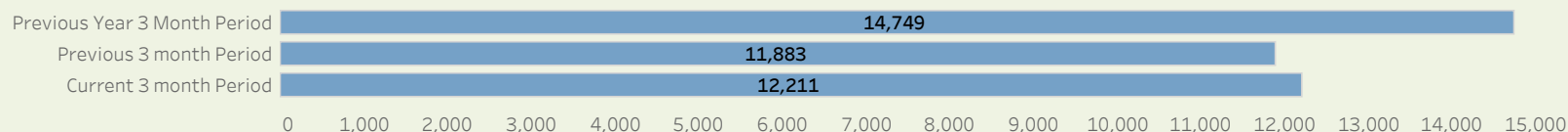
## Measuring the carbon footprint of inhaler use within primary care in Wales

### Introduction

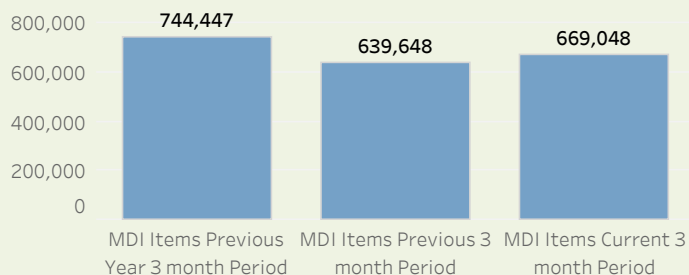
The Welsh Analytical Prescribing Support Unit (WAPSU), the analytical unit of the All Wales Therapeutics and Toxicology Centre (AWTTC), has developed a dashboard to report on progress in reducing the carbon footprint of inhalers used within primary care in Wales. Currently these carbon footprint data are related to the use of the inhalers only. This report is intended as a brief summary overview of some of the key metrics provided within that dashboard. On a quarterly basis i.e. the June, September, December and March reports an annex for secondary care data will be provided.

Current 3 Month Period = **October 2023 to December 2023**, Previous 3 Month Period = **July 2023 to September 2023**, Previous Year 3 Month Period = **October 2022 to December 2022**

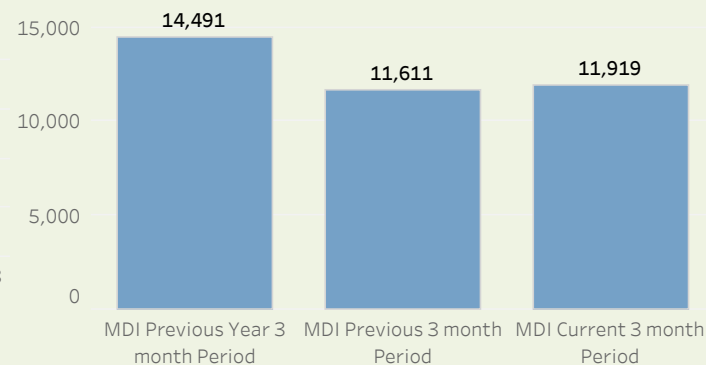
### Indicative carbon footprint (all inhalers) (CO<sub>2</sub>Tonnes)



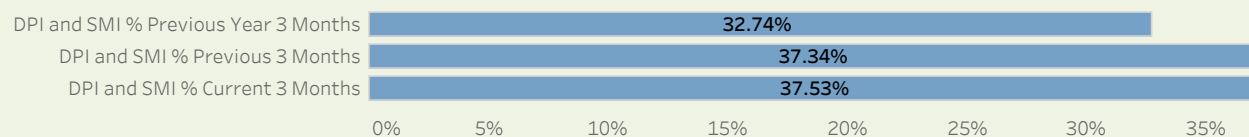
### MDI Items



### MDI Usage (CO<sub>2</sub>Tonnes)



### DPI and SMI Inhalers as a percentage of total items (%)



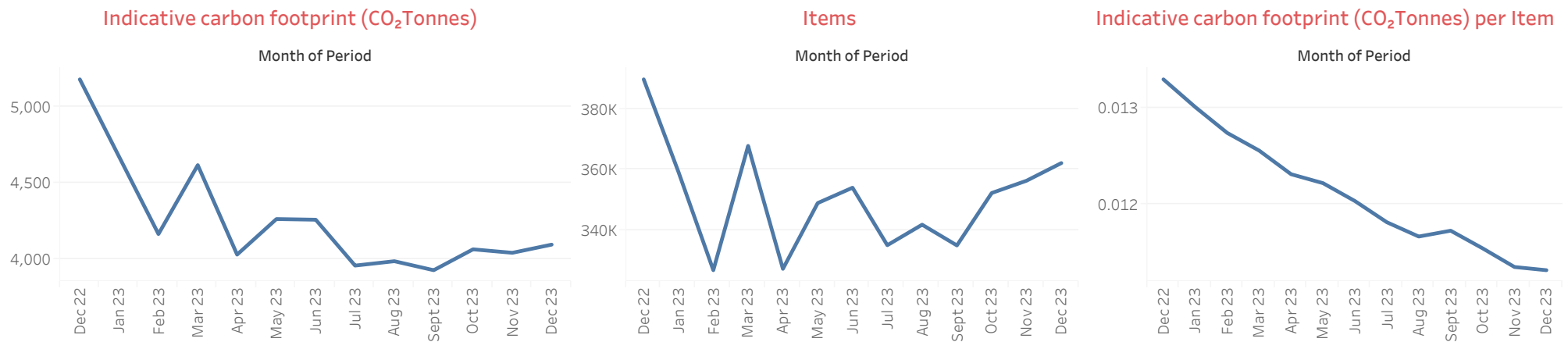
## Annual change Part 1

To show change across comparative periods, **Table 1** provides the key metric data for the latest month and the same month of the previous year. **Figure 1** provides the main metrics in a graphical form.

**Table 1.** Percentage change in key metrics since equivalent month of previous year.

Measure	December 2022	December 2023	Percentage Change
Total number of inhaler items	389,563	362,183	-7.03%
Indicative carbon footprint (CO <sub>2</sub> Tonnes)	5,180	4,099	-20.87%
Indicative carbon footprint per item (CO <sub>2</sub> Tonnes)	0.0133	0.0113	-14.89%
MDI percentage of indicative carbon footprint (%)	98.26%	97.57%	-0.70%
MDI percentage of total inhaler items (%)	68.72%	62.19%	-9.50%
SABA percentage of indicative carbon footprint (%)	61.50%	57.04%	-7.26%
SABA percentage of total inhaler items (%)	42.36%	38.75%	-8.54%

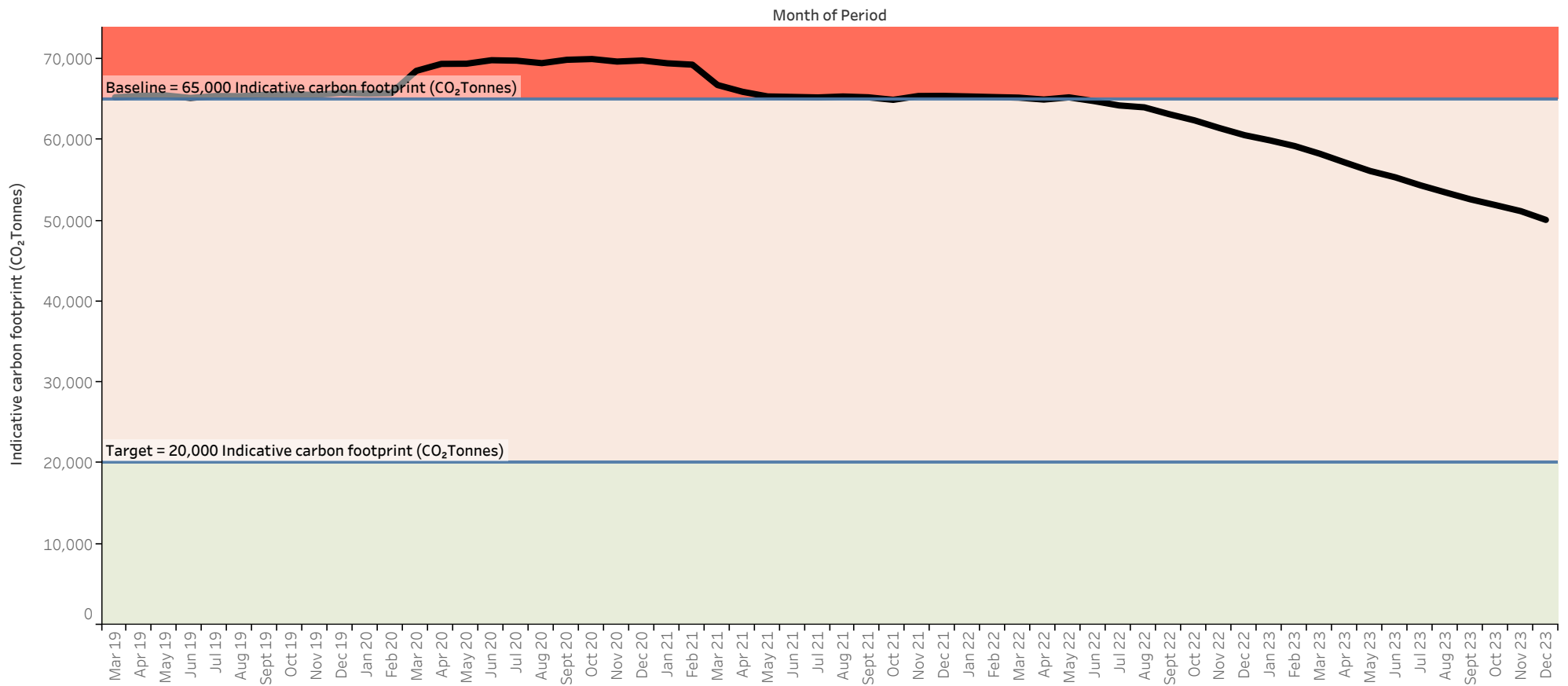
**Figure 1.** The indicative carbon footprint, number of inhaler items, and indicative carbon footprint per item issued within primary care in Wales  
December 2022 to December 2023



## Overall carbon footprint

The target as set out in the NHS Wales Decarbonisation Strategic Delivery Plan is to increase the use of low global warming potential inhalers to 80% of the total inhalers issued by 2025. This equates to a decrease in carbon dioxide (CO<sub>2</sub>) to 20,000 tonnes per year by 2025; the equivalent saving of 5,600 airplane trips around the world every year. **Figure 2** shows total current annual carbon footprint based on the latest month's data as a rolling month annual total.

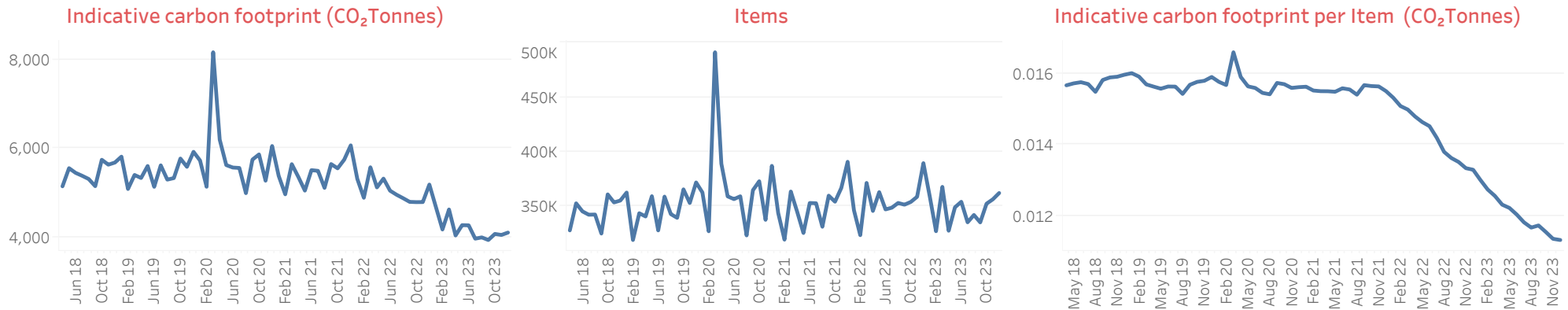
**Figure 2.** The indicative annual carbon footprint of all inhalers issued within primary care in Wales – from April 2019 to December 2023



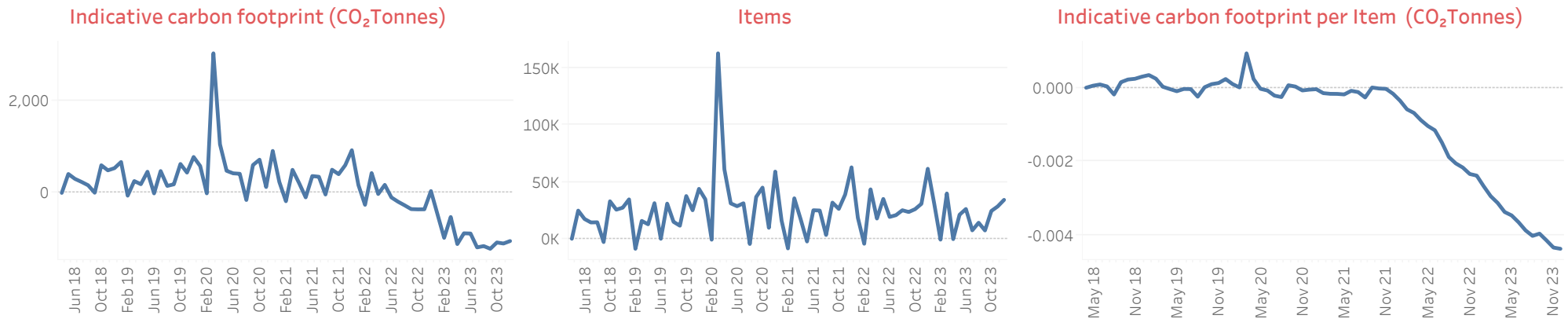
### Key metrics

Several key metrics are reported on a monthly basis to support the stated target for reducing the inhaler carbon footprint. These are shown in figures 3 and 4 which are presenting monthly data.

**Figure 3.** The indicative carbon footprint, number of inhaler items, and indicative carbon footprint per item issued within primary care in Wales from April 2018 to December 2023

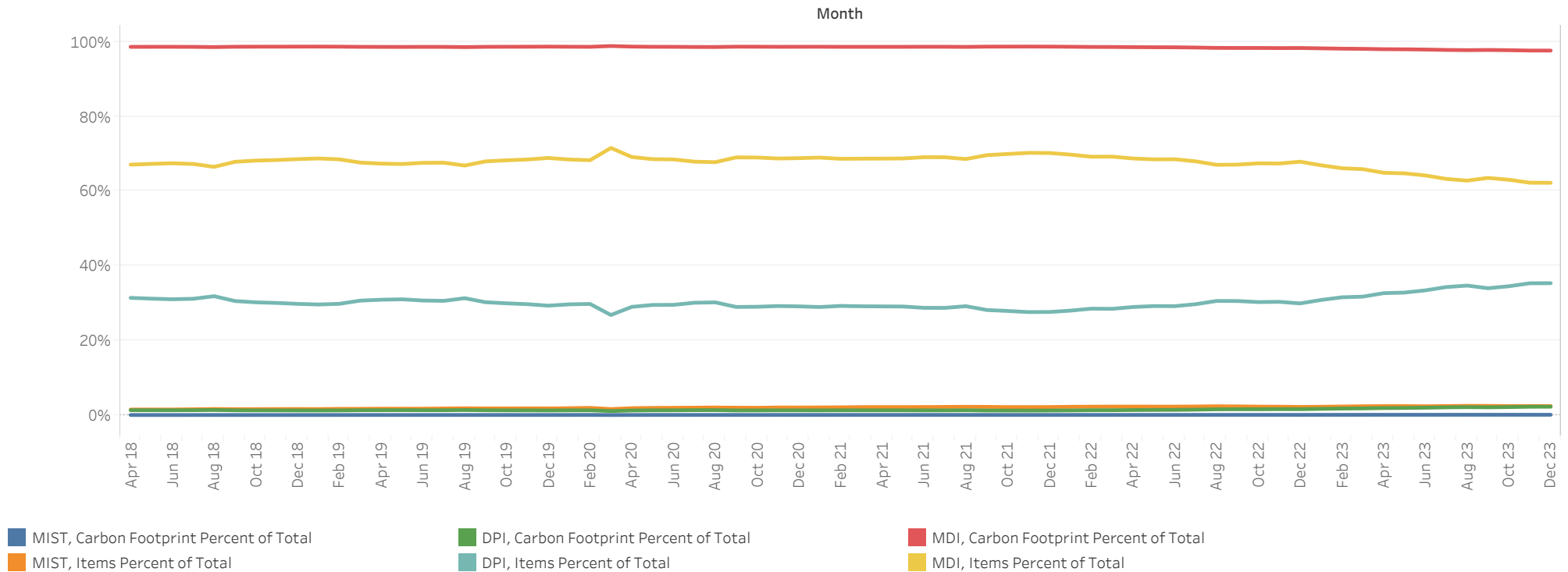


**Figure 4.** The indicative carbon footprint, number of inhaler items issued, and indicative carbon footprint per item, changes between April 2018 to December 2023, within primary care in Wales from April 2018 to December 2023



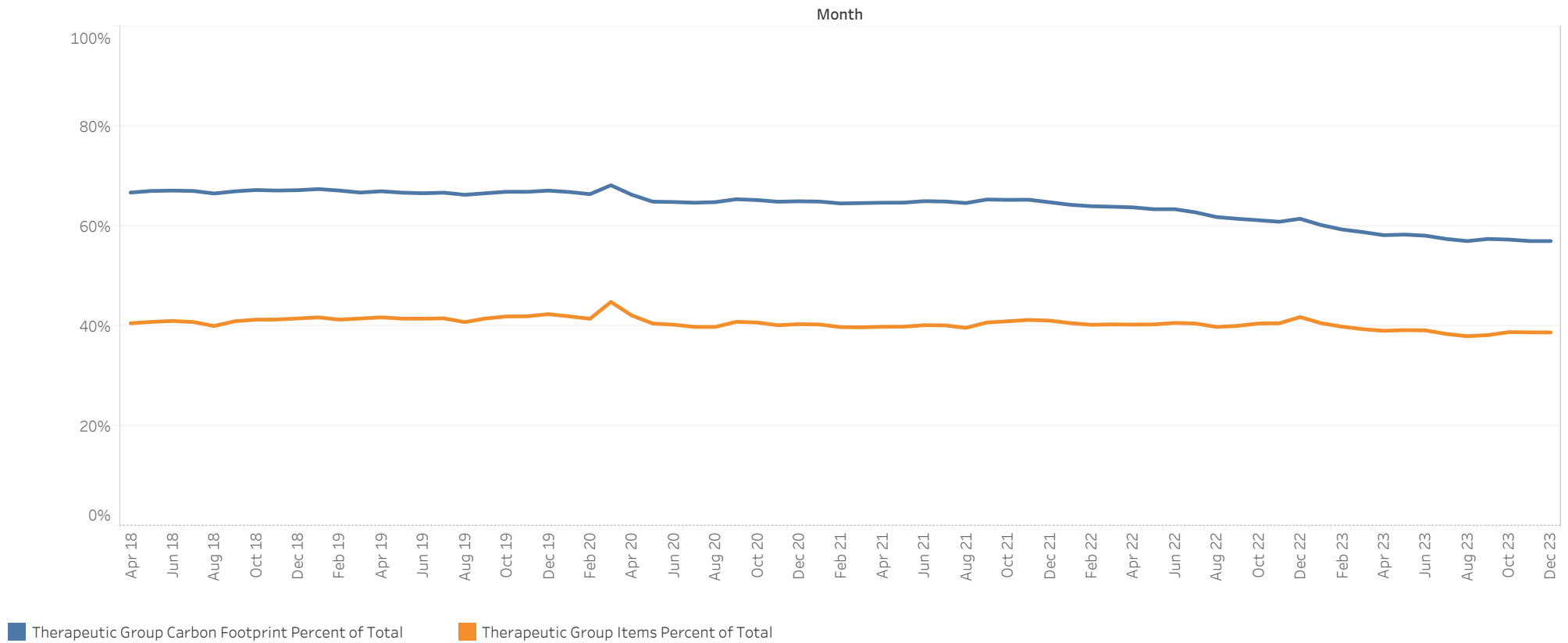
The recent All Wales Medicines Strategy Group (AWMSG) endorsed COPD and Asthma guidelines can support medicines optimisation by providing direction for inhaler choices. Metered dose inhalers (MDIs) have a high carbon footprint when compared to the other available inhaler types, namely dry powder inhalers (DPIs) and soft mist inhalers (SMIs). MDIs currently contribute nearly all of the inhaler carbon footprint. DPIs, and SMIs have a significantly lower global warming potential associated with their use. Therefore, a move to decreasing the use of MDIs, in favour of these alternative inhaler types should make a significant contribution to lowering the environmental impact from the use of inhalers. **Figure 5** provides a trend graph of the percentage of inhaler type by item number and carbon footprint.

**Figure 5.** Item number and carbon footprint associated with the use of different inhaler types as a percentage of all inhalers issued within primary care in Wales – from April 2018 to December 2023



Short-acting beta-agonist (SABA) inhalers are intended for use in acute situations only. Therefore, regular use could indicate a potential under-optimisation of other therapies. The current All Wales Asthma guideline states that daily reliance on SABAs is associated with an increased risk of severe exacerbations and mortality, reflecting very poorly controlled asthma. **Figure 6** provides a trend graph of the percentage of SABA inhalers by item number and carbon footprint for all of the inhalers issued within Wales.

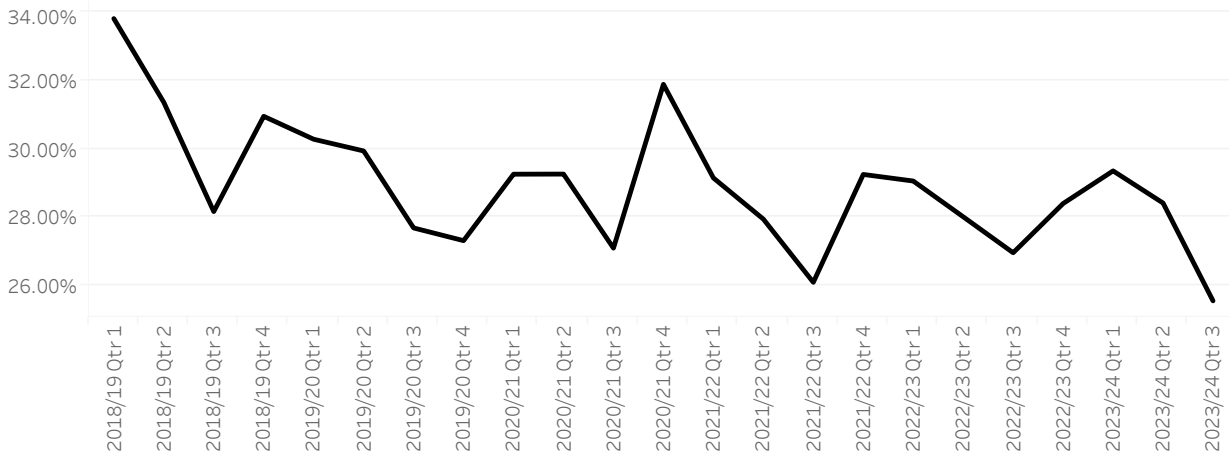
**Figure 6.** Item number and carbon footprint of SABA inhalers as a percentage of all inhalers issued within primary care in Wales – from April 2018 to December 2023



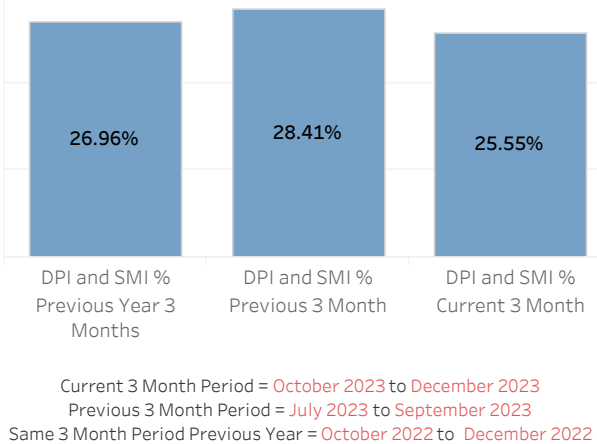
### Summary of Secondary Care Analysis of DPI and SMI vs Total Quantity

Data for inhalers issued in hospital settings (secondary care) are available on a quarterly basis. **Figure 7** provides trend of the percentage of inhalers issued that are either DPI and SMI as a percentage of all inhalers. **Figure 8** compares DPI and SMI as a percentage of all inhalers over 3 time periods. The most recent 3 months, a 3 month period prior to the most recent 3 months and the same 3 month period in the previous year. **Table 2** provides the main key metrics for the latest month and the same month of the previous year.

**Figure 7.** Combined DPI and SMI percentage of total inhaler quantity issued in secondary care from April 2018 to December 2023



**Figure 8.** Combined DPI and SMI percentage of total inhaler quantity issued in secondary care



**Table 2**

	Dec 22	Dec 23	Percentage Change
Total number of inhaler quantity	10,322	9,327	-9.64%
Indicative carbon footprint (CO <sub>2</sub> Tonnes)	184.7	164.6	-10.93%
Indicative carbon footprint per Quantity (CO <sub>2</sub> Tonnes)	0.018	0.018	-1.43%
MDI percentage of indicative carbon footprint (%)	98.95%	98.90%	-0.05%
MDI percentage of total inhaler quantity (%)	73.22%	72.63%	-0.81%
SABA percentage of indicative carbon footprint (%)	76.76%	76.16%	-0.78%
SABA percentage of total inhaler quantity (%)	50.96%	50.47%	-0.97%

Secondary care data are reported as quantity. However for the purpose of this report we have made these analogous to items to enable a comparison.

END OF REPORT