

# PA1020 DuoResp® Spiromax® adherence, satisfaction and ease of use: findings from a multi-country observational study in patients with asthma and COPD (SPRINT)

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## BACKGROUND

- Inhaled medications are central to the management of asthma and chronic obstructive pulmonary disease (COPD).<sup>1,2</sup>
- Management of asthma and COPD is not only reliant on the medications themselves but also on their effective delivery using inhalers. However, treatment adherence and inhaler technique are often suboptimal.<sup>3–5</sup>
- Hence, new inhalers have been developed to improve treatment effectiveness.
- DuoResp® Spiromax® is a budesonide/formoterol fixed-dose combination (FDC) treatment that contains the same active substances as the Symbicort® Turbuhaler®, but uses a different dry-powder inhaler (DPI) mechanism with fewer preparation manoeuvres.<sup>6</sup>

## OBJECTIVE

- The objective of the SPRINT study was to obtain a cross-sectional overview of patient-reported adherence to, satisfaction with, and ease of use of DuoResp Spiromax among patients with asthma and COPD from real-world clinical practice.

## METHODS

### Study design and patients

- The SPRINT study was a Phase IV, real-world, multinational, observational, prospective study performed between May 2015 and April 2017 at 140 centers in Croatia, Denmark, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden and the UK.
- Patients were aged ≥18 years with a diagnosis of persistent asthma, or aged ≥40 years and/or (ex)-smoker with more than 10 pack-years of smoking and a diagnosis of COPD.
- Patients were receiving a stable dose (no change in dose by >50% in the last 3 months) of inhaled corticosteroid/long-acting β-agonist (ICS/LABA) FDC, administered twice daily via a variety of DPI devices, including DuoResp Spiromax, for the 3 months prior to enrollment.
- Data for the whole population of patients receiving any ICS/LABA FDC are presented separately (Poster PA1006).

### Outcomes

- For patients using DuoResp Spiromax, assessments included:
  - Demographic and clinical characteristics obtained from medical records.
  - Patient-reported adherence to DuoResp Spiromax, assessed using the 8-item Morisky Medication Adherence Scale (MMAS-8).<sup>7,8</sup>
  - Satisfaction with Spiromax and patient-perceived ease of use, assessed using questionnaires with 10-point scales.
  - Ease of use, determined by five questions on a 10-point scale.

### Statistics

- All data were summarised descriptively.
- The relationship between patient adherence and satisfaction with the device and ease of use was investigated using Spearman correlation, with an alpha level of 0.05 for the correlation test. No imputation was made for missing data.
- Statistical analyses were conducted using R, version 3.1.3 or later.

## RESULTS

### Patients

- The full analysis set comprised 1101 patients with asthma and 560 with COPD. Of these, 342 patients (asthma: n=235; COPD: n=107) were receiving ICS/LABA FDC treatment with DuoResp Spiromax.
- Baseline clinical characteristics and demographics of patients with asthma and COPD who were receiving treatment with DuoResp Spiromax are presented in **Table 1**.

**Table 1. Demographic and clinical characteristics of patients receiving treatment with DuoResp Spiromax**

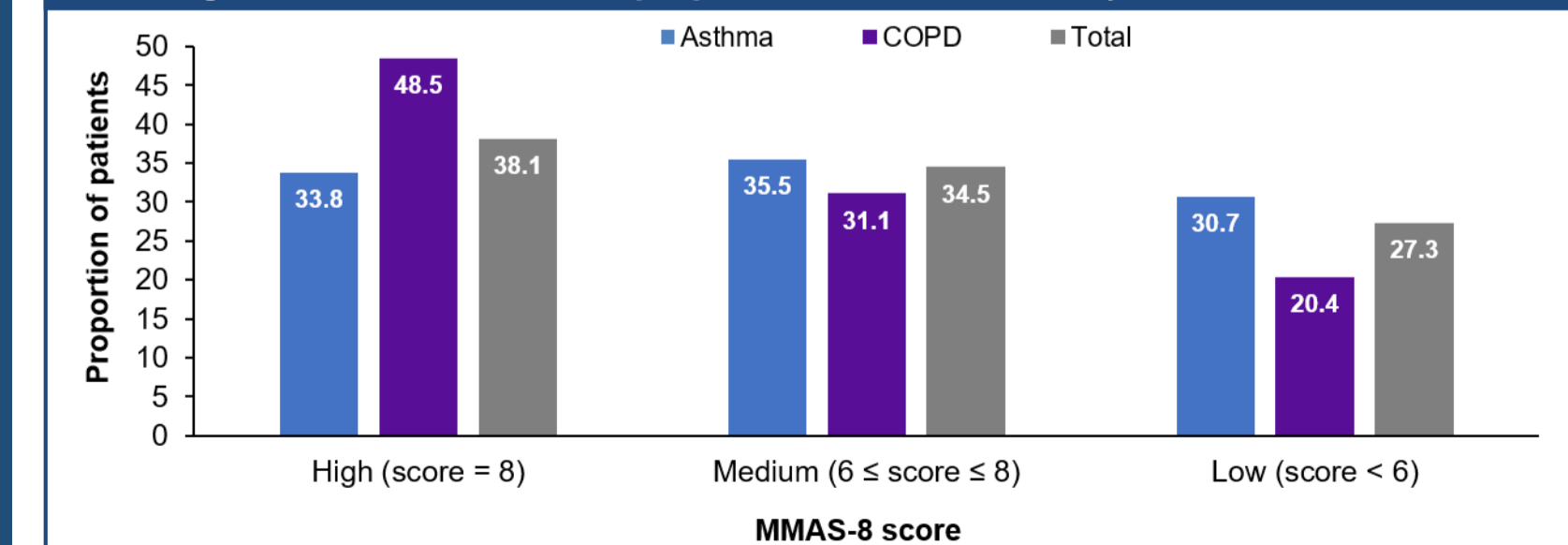
	Asthma (n=235)	COPD (n=107)
Mean age, years (SD)	50.6 (17.5)	68.7 (8.9)
Men, n (%)	102 (43.4)	67 (62.6)
Mean BMI, kg/m <sup>2</sup> (SD)	27.7 (6.3)	28.2 (5.3)
Mean time since disease diagnosis, years (SD)	12.4 (13.6)	7.9 (6.1)
Mean FEV <sub>1</sub> , % predicted (SD)	84.3 (24.2)	54.4 (17.5)
Previous asthma/COPD treatment, n (%)	(n=215)	(n=98)
None	76 (35.3)	23 (23.5)
ICS	33 (15.3)	2 (2)
LABA	4 (1.9)	5 (5.1)
FDC (different from current)	84 (39.1)	51 (52)
LAMA	0 (0)	14 (14.3)
Leukotriene modifier	10 (4.7)	0 (0)
Methylxanthine (Theophylline)	0 (0)	0 (0)
Other	8 (3.7)	3 (3.1)

BMI, body mass index; COPD, chronic obstructive pulmonary disease; FDC, fixed-dose combination; FEV<sub>1</sub>, forced expiratory volume in 1 second; ICS, inhaled corticosteroid; LABA, long-acting beta agonist; LAMA, long-acting muscarinic antagonist; SD, standard deviation.

### Treatment adherence

- Mean (standard deviation [SD]) MMAS-8 score among all DuoResp Spiromax users (pooled asthma and COPD N=342) was 6.6 (1.6); mean (SD) scores among those with asthma and COPD were 6.5 (1.6) and 6.9 (1.5), respectively.
- Overall, 72.6% of all DuoResp Spiromax users reported medium or high adherence (MMAS-8 score ≥6; **Figure 1**). The corresponding proportions were 69.3% of asthma patients and 79.6% of COPD patients using DuoResp Spiromax.

**Figure 1. Adherence to ICS/LABA FDC treatment among asthma and COPD patients receiving treatment with DuoResp Spiromax, as assessed by MMAS-8 score**

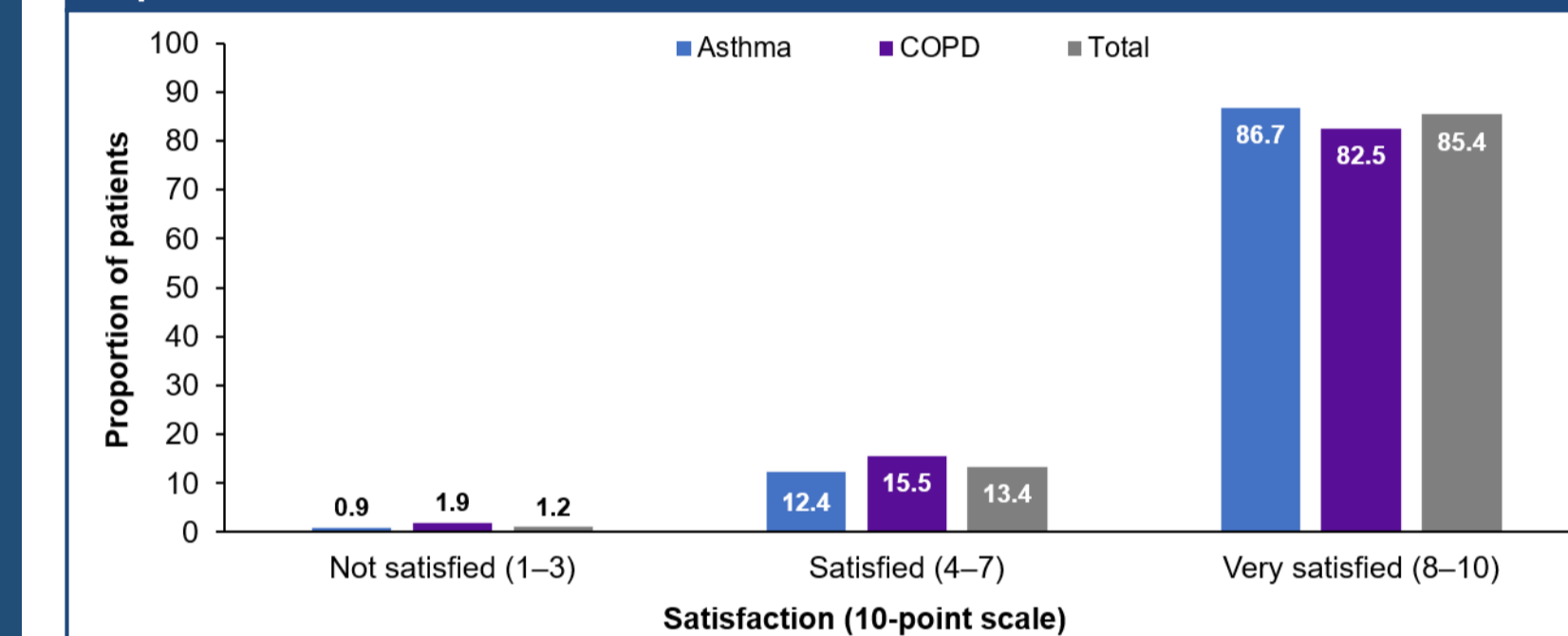


Data unavailable for five patients with asthma and two patients with COPD. Percentage calculations are based on available data. FDC, fixed-dose combination; ICS, inhaled corticosteroid; LABA, long-acting beta agonist; MMAS-8, 8-item Morisky Medication Adherence Scale

### Inhaler satisfaction

- Among all Spiromax users (pooled asthma and COPD patients), mean (SD) satisfaction score was 8.9 (1.6) out of 10; scores among those with asthma and COPD were 9 (1.5) and 8.6 (1.8), respectively.
- Nearly all Spiromax users (98.8%) were at least satisfied with the inhaler, with 85.4% of patients being very satisfied (**Figure 2**).

**Figure 2. Patient satisfaction with the Spiromax inhaler, self-assessed on a 10-point scale**



Data for two patients with asthma and four patients with COPD were unavailable.

### Inhaler ease of use

- Among all Spiromax users (pooled asthma and COPD patients), mean scores rated on a 10-point scale were ≥9 for all five questions (**Table 2**).
- Mean (SD) ease of use score was 9.1 (1.3) out of 10.
- Mean scores for each ease of use question were numerically similar among patients with asthma and COPD.

**Table 2. Patient-reported ease of use of the Spiromax inhaler, self-assessed on a 10-point scale**

	Asthma (n=235)	COPD (n=107)	Total (N=342)
<b>1. How easy is it to use your inhaler?</b>			
Mean (SD)	9.2 (1.3)	9.1 (1.3)	9.1 (1.3)
Not available, n	3	0	3
<b>2. How easy is it to clean your inhaler?</b>			
Mean (SD)	9.0 (1.5)	9.0 (1.4)	9.0 (1.5)
Not available, n	11	1	12
<b>3. How easy is it to use your inhaler during situations that require rescue/reliever treatment?*</b>			
Mean (SD)	9.0 (1.4)	9.2 (1.4)	9.1 (1.4)
Not available, n	135*	62*	200*
<b>4. How easy was it to learn to use your inhaler?</b>			
Mean (SD)	9.2 (1.5)	9.1 (1.2)	9.2 (1.4)
Not available, n	7	0	7
<b>5. Do you find it easy to know how many doses are left in your inhaler?</b>			
Mean (SD)	9.3 (1.5)	9.2 (1.4)	9.2 (1.5)
Not available, n	6	1	7

\*Only patients who reported that they used their inhaler for rescue/reliever treatment were included for this question. SD, standard deviation

### Correlation between adherence and inhalation device

- Treatment adherence, as evaluated by MMAS-8 score, was significantly correlated with both inhaler satisfaction (p=0.001) and ease of use (p<0.001) among pooled patients with asthma or COPD receiving treatment with DuoResp Spiromax (**Table 3**).

**Table 3. Correlation of inhaler satisfaction and ease of use with adherence to treatment among patients with asthma and COPD receiving treatment with DuoResp Spiromax**

	Total (N=342)	P value
<b>MMAS-8 score and inhaler satisfaction</b>		
Spearman correlation	0.166	0.001
<b>MMAS-8 score and ease of use</b>		
Spearman correlation	0.186	<0.001

P-value for Spearman correlation could not be computed exactly due to ties. MMAS-8, 8-item Morisky Medication Adherence Scale

## CONCLUSIONS

- Adult patients with asthma and COPD using DuoResp Spiromax reported medium-to-high treatment adherence.
- Patients found Spiromax easy to use. The majority of patients using Spiromax indicated that they were very satisfied with their inhaler, supporting the high levels of satisfaction seen previously.<sup>6,9</sup>
- Treatment adherence was significantly correlated with both inhaler satisfaction and ease of use among patients with asthma or COPD receiving treatment with DuoResp Spiromax.
- The observed high satisfaction with and adherence to DuoResp Spiromax is indicative of potential for improved clinical outcomes. In view of the limitations of this study, having been conducted in a single visit and over a short duration, further investigation is warranted.

### References

- 1) Global Initiative for Asthma. 2017. 2) Global Initiative for Chronic Obstructive Lung Disease. 2017. 3) Cerveri I, et al. Eur Respir J 1999;14:288–94. 4) Restrepo RD, et al. Int J Chron Obstruct Pulmon Dis 2008;3:371–84. 5) Lavorini F, et al. Respir Med 2008;102:593–604. 6) Virchow JC, et al. BMC Pulm Med 2016;16:42. 7) Morisky DE, et al. Med Care 1986;24:67–74. 8) Tan X, et al. Innovations in Pharmacy 2014;5:1–8. 9) Price D, et al. BMC Pulm Med 2018;18:107.

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### Disclosures

The presenting author, Prof. Job van der Palen, reports reimbursements for advisory board meetings and presentations from Boehringer Ingelheim, GSK, Mundipharma, and Teva, outside the presented work.