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### AN ASSESSMENT OF SHORT-ACTING $\beta_2$ -AGONIST (SABA) USE AND SUBSEQUENT GREENHOUSE GAS (GHG) EMISSIONS IN FIVE EUROPEAN COUNTRIES AND THE CONSEQUENCE OF THEIR POTENTIAL OVERUSE FOR ASTHMA IN THE UK

<sup>1</sup>AJK Wilkinson, <sup>2</sup>A Menzies-Gow, <sup>3</sup>M Sawyer, <sup>4</sup>JP Bell, <sup>5</sup>Y Xu, <sup>6</sup>N Budgen, <sup>7</sup>T Harrison. <sup>1</sup>East and North Hertfordshire NHS Trust, Stevenage, UK; <sup>2</sup>Royal Brompton Hospital, London, UK; <sup>3</sup>SEE Sustainability, Northallerton, UK; <sup>4</sup>BioPharmaceutical Medical, AstraZeneca, Cambridge, UK; <sup>5</sup>AstraZeneca UK Marketing Company, Luton, UK; <sup>6</sup>Global Sustainability, AstraZeneca, Macclesfield, UK; <sup>7</sup>Nottingham Respiratory Research Unit, Nottingham, UK

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**Introduction** The SABA Use IN Asthma (SABINA) programme associates SABA overuse (prescription of  $\geq 3$  canisters per year versus 0–2) with increased risk of exacerbations and asthma-related healthcare utilisation<sup>1</sup>; with this overuse common across Europe.<sup>2</sup> In parallel, the environmental impact of inhaler choice receives attention but is often focussed on preventers. We analysed the volume of SABA use and its GHG emissions versus total inhaler devices and compared the U.K. with other European countries. Next, we calculated the annual volume and GHG emissions from SABA overuse in asthma in the U.K. using the SABINA U.K. study data.

**Methods** Inhaler use was calculated using sales data obtained from life science analytics company IQVIA™ over 12 months to September 2019. Data were compared by dose, preventing confounding from device actuation count differences. SABA overuse volume in asthma *i.e.* sum of prescribing  $\geq 3$  prescriptions in 12 months, was extracted from Clinical Practice Research Datalink GOLD as part of SABINA U.K. ( $\geq 12$  years, current asthma diagnosis, any severity, 12 month period between 2007–2019). GHG emissions of inhaler devices were estimated using published and internal AstraZeneca data on their full life cycle.

**Results** SABA represents the majority of inhaler use and of GHG emissions in the U.K. and its neighbours (table 1). However, U.K. SABA use and GHG emissions per capita are approximately treble those of other countries. In SABINA U.K., 284,683 out of 574,913 asthma patients were potentially overusing SABA. The average for this group was 6.51 prescriptions per year. 83% of SABA prescriptions for asthma went to patients overusing SABA. For the U.K. asthma population this represents 9.24 million SABA prescriptions and 250,000 tonnes of CO<sub>2</sub>[equivalent] annually.

**Conclusion** These data demonstrate the GHG emissions associated with high SABA use across Europe and particularly in the U.K. Implementing guidelines to drive improvements in asthma care would improve asthma control, thereby reducing

reliever medication use and exacerbation frequency, benefiting patients and realising carbon savings that go beyond the reduction in SABA use alone.

#### REFERENCE

1. Bloom CI, et al. *Adv Ther* 2020: <https://doi.org/10.1007/s12325-020-01444-5>
2. Janson C, et al. *Adv Ther* 2020: **37**; 1124–1135

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### EFFECT OF HIGH ICS DOSE FIXED COMBINATION EXTRAFINE BECLOMETHASONE DIPROPIONATE, FORMOTEROL FUMARATE, AND GLYCOPYRRONIUM (BDP/FF/G) PMDI ON ASTHMA CONTROL IN PATIENTS WITH PERSISTENT AIRFLOW LIMITATION (PAL): A POST-HOC ANALYSIS OF THE TRIGGER STUDY

<sup>1</sup>D Singh, <sup>2</sup>JC Virchow, <sup>3</sup>WG Canonica, <sup>4</sup>G Georges, <sup>4</sup>A Vele, <sup>5</sup>E Nudo, <sup>5</sup>P Guller, <sup>6</sup>A Papi. <sup>1</sup>Medicines Evaluation Unit, University of Manchester, Manchester, UK; <sup>2</sup>Department of Pneumology/Intensive Care Medicine, University of Rostock, Rostock, Germany; <sup>3</sup>Humanitas University and Research Hospital, Milan, Italy; <sup>4</sup>Global Clinical Development Chiesi Farmaceutici, S.p.A., Parma, Italy; <sup>5</sup>Global Medical Affairs Chiesi Farmaceutici, S.p.A., Parma, Italy; <sup>6</sup>Section of Cardiorespiratory and Internal Medicine, Department of Medical Sciences, University of Ferrara, Ferrara, Italy

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**Introduction and Objectives** Persistent airflow limitation (PAL) predicts a positive clinical response to add-on long acting muscarinic antagonist in patients with asthma taking inhaled corticosteroids and long-acting  $\beta_2$ -receptor agonists. We conducted a *post-hoc* analysis of the TRIGGER study to evaluate the effect of extrafine BDP/FF/G vs BDP/FF on asthma control and the use of systemic corticosteroids for asthma exacerbations in a subset of patients with PAL.

**Methods** TRIGGER was a phase III, randomized, parallel group trial comparing 52-week treatment with BDP/FF/G 200/6/10 $\mu$ g two inhalations twice daily (BID) to BDP/FF 200/6 $\mu$ g BID and an open-label treatment arm consisting of BDP/FF 200/6 $\mu$ g BID plus tiotropium (BDP/FF+Tio). PAL criteria were a post-bronchodilator FEV<sub>1</sub> $\leq 80\%$  of predicted normal and FEV<sub>1</sub>/FVC $\leq 0.7$ ; ACQ-7 response was defined as a change from baseline in ACQ-7 score  $\leq 0.5$  unit, and asthma control days as asthma symptom-free day without using rescue medication.

**Results** 1437 subjects were randomized and 61.2% met the PAL criteria. In this subgroup, there was a significantly higher percentage of ACQ-7 responders on BDP/FF/G compared to BDP/FF at week 26 (60.2% vs 49.4%) and week 52 (60.8% vs 51.7%). In the overall population, the difference in the percentage of ACQ-7 responders was 61.3% vs 55.9% at week 26 and 62.3% vs 58.1% at week 52, for BDP/FF/G and BDP/FF respectively. In patients with PAL, the change from

**Abstract S26 Table 1** Comparison of U.K. with other European countries on the annual use and impact on greenhouse gas (GHG) emissions of short-acting  $\beta_2$ -agonist (SABA) relievers vs total inhaler usage (reliever & preventer)

Country	SABA vs total inhaler use (%)	SABA vs total inhaler GHG emissions (%)	SABA GHG emissions (tonnes CO <sub>2</sub> e*)	SABA use per capita (,000 doses/10,000 people)	SABA GHG emissions per capita (tonnes CO <sub>2</sub> e/10,000 people)
Italy	46.5	54.8	104,503	126	17
Spain	58.9	69.3	195,771	319	40
France	62.5	72.6	334,715	383	50
Germany	54.1	67.1	293,638	276	36
U.K.	70.2	67.5	862,685	1034	134

\*CO<sub>2</sub> equivalent