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**Presenting author:** Ashraf Al Zaabi

## **Carbon footprint of inhalers in respiratory treatment: SABA CARBON International**

**Background:** The environmental impact of preventer inhalers has been a recent focus in respiratory care, despite widespread SABA overuse ( $\geq 3$  canisters/year) and associated poor outcomes.

**Aim:** To assess greenhouse gas (GHG) emissions for SABA vs total inhaler use (all respiratory indications), and SABA overuse for asthma, in Africa, Asia-Pacific, Latin America, and the Middle East as part of the CARBON programme.

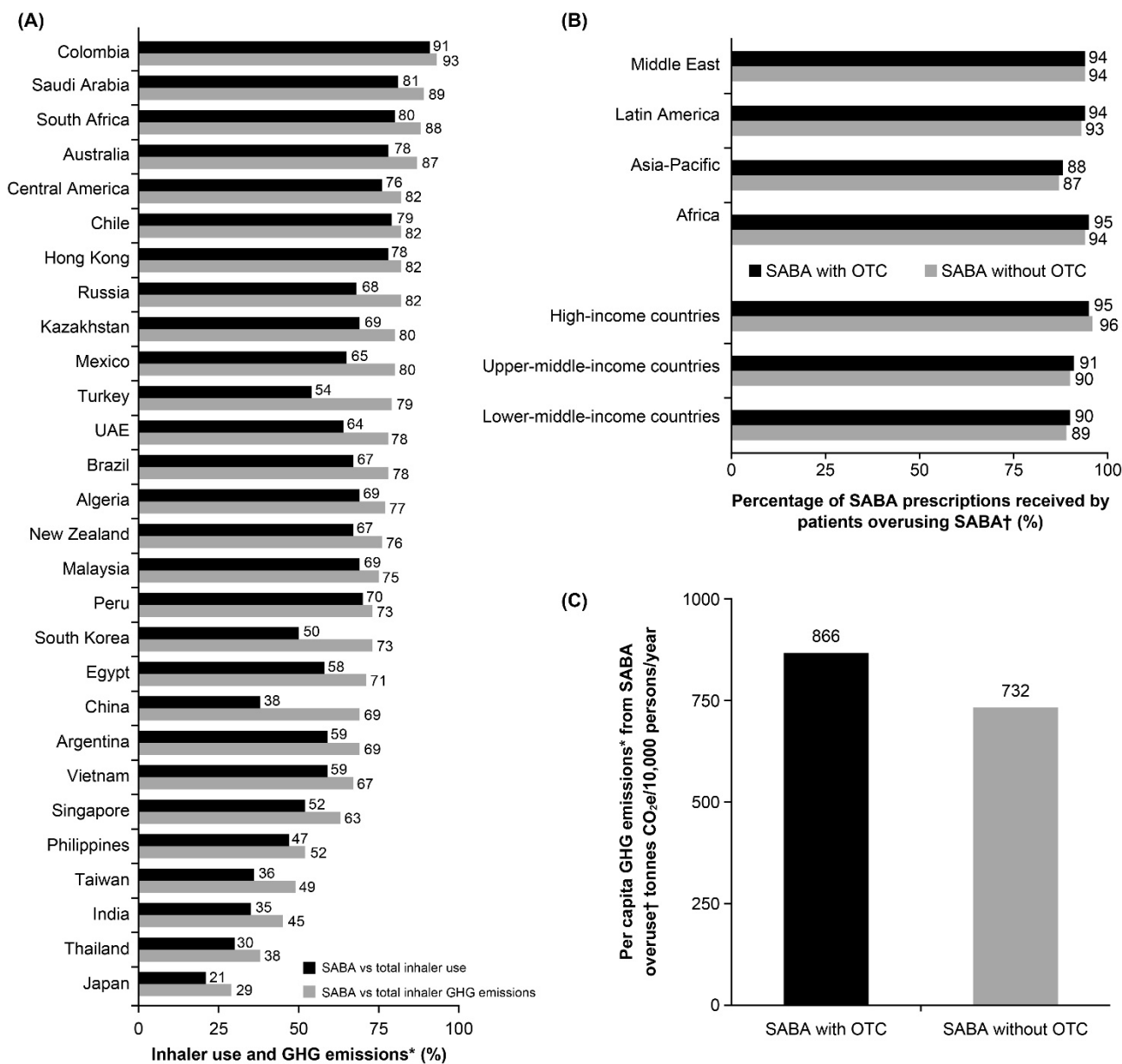
**Methods:** This observational study used IQVIA™ sales data (2018–2019) for inhalers (all respiratory conditions) and SABINA III SABA prescription/ OTC purchase data for asthma (2019–2020) (Bateman ED, et al. *ERJ* 2021:2101402). GHG emissions as CO<sub>2</sub> equivalents (CO<sub>2</sub>e) per actuation or canister were used for calculations.

**Results:** SABAs accounted for  $\geq 50\%$  of inhaler sales in 22/28 countries and inhaler-related GHG emissions in 24/28 countries ( $>70\%$  in 19/28 countries). Across geographic regions and economies,  $>85\%$  of SABA was prescribed to overusers. Per capita GHG emissions linked to SABA overuse were 866 and 732 tonnes CO<sub>2</sub>e/10,000 persons/year, with and without SABA OTC, respectively.

**Conclusion:** SABA comprises most of the inhaler use and inhaler-related GHG emissions, with overuse in asthma representing a potentially modifiable environmental impact.

Implementing current treatment recommendations could improve disease control, reducing SABA overuse and HCRU and benefiting both patients and the environment.

**Figure: (A) SABA inhaler use and associated GHG emissions as a percentage of total inhaler use (IQVIA™ sales data); (B) Percentage of SABA prescriptions received by patients with asthma overusing SABA, stratified by region and gross national income (SABINA III data); (C) Per capita GHG emissions associated with SABA overuse (SABINA III data)**



\*GHG emissions from inhalers were determined by a combination of certified published studies, AstraZeneca internal data and modelled estimates.  
 †SABA overuse is defined as use of ≥3 SABA canisters/year. Inhaler sales/prescription data were used as surrogates of use.  
 CO<sub>2</sub>e, carbon dioxide equivalent; GHG, greenhouse gas; OTC, over the counter; SABA, short-acting β<sub>2</sub>-agonist; SABINA, SABA use IN Asthma; UAE, United Arab Emirates.