New data show overuse of reliever medication in asthma is responsible for 250,000 tonnes of greenhouse gas emissions every year in the UK

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Analysis of UK inhaler medicine use and carbon footprint presented at the British Thoracic Society Winter Meeting

AstraZeneca, UK, Luton: 17 February 2021*:* New analysis of respiratory inhaler medicine use in the UK shows that 83% of all short-acting beta-2-agonist (SABA) relievers for asthma are prescribed to patients who are potentially overusing their reliever medication (prescribed ?3 inhalers/year).[1] The overuse of SABA relievers represents 9.24 million SABA prescriptions and is responsible for 250,000 tonnes of CO_2 equivalent annually.[1]

These findings will be presented at the British Thoracic Society Winter Meeting and are based on SABA prescription and use data extracted from the UK study in the SABA Use IN Asthma (SABINA) global programme of harmonised, large-scale observational studies collected between 2007-2017.[2]

The prescription of three or more SABA inhalers per year is associated with poor asthma control, approximately twice the number of exacerbations compared with low SABA users (prescribed 0-2 inhalers/year) and increased asthma-related healthcare utilisation.[2,3] Asthma is a chronic, variable, inflammatory disease affecting 5.4 million people in the UK (4.3 million adults) and can cause asthma attacks and symptoms including breathlessness and wheezing.[4,5] Every 10 seconds someone in the UK has a potentially life-threatening asthma attack with, on average, three people dying from asthma every day.[5]

Alexander J K Wilkinson, Consultant in Respiratory and General Medicine, East and North Hertfordshire NHS Trust, Stevenage, UK and lead author of the study said: “Overuse of reliever inhalers in asthma is widespread in the UK and associated with an increased risk of exacerbations for patients, highlighting the importance of adopting strategies to improve disease control and reduce short-acting beta-2-agonist overuse. This new analysis shows that reliever overuse is also a major contributor to greenhouse gas emissions in respiratory care, similar to driving an average diesel car for about 900 million miles. These findings are important for informing clinical guidelines and healthcare policies to support improvements in asthma care while also realising carbon savings.”

Alex de Giorgio-Miller, Vice President, Medical & Scientific Affairs, AstraZeneca UK, said: “We know that the overuse of SABA ‘reliever’ inhalers is associated with an increased risk of severe asthma attacks, but this analysis highlights the scale of the problem we face in the UK, both in terms of poor health outcomes and the corresponding greenhouse gas burden. By reducing over-reliance on SABA inhalers and improving asthma outcomes, we can also have an important positive impact on the environment.”

Further results from the analysis showed that SABA inhaler use drives 70% of greenhouse gas emissions (GHG) from inhaler devices in the UK.[1] The per capita use of all SABA reliever inhalers in the UK was approximately treble or more than that observed in other large European countries, resulting in even higher GHG emissions.[1]

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Notes to editor

Asthma

Asthma is a common chronic respiratory disease, and it affects the health and day-to-day lives of as many as 339 million adults and children worldwide.[6] It is characterised by recurrent breathlessness and wheezing which varies over time, and in severity and frequency from person to person.[7]

All asthma patients are at risk of severe exacerbations regardless of their disease severity, adherence to treatment or level of control.[8,9,10] There are an estimated 176 million asthma exacerbations globally per year;[11]
these are physically threatening and emotionally significant for many patients.[12]
However, despite asthma being a chronic, variable inflammatory disease, many patients are either

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under-prescribed or under-use their anti-inflammatory maintenance therapy and may over-rely on their SABA reliever, which can mask symptom worsening.[13-16] Taking a SABA inhaler alone during a worsening of symptoms does not address the underlying inflammation, leaving patients at risk of asthma exacerbations and potential exposure to frequent bursts of oral corticosteroids.[17]

The Global Initiative for Asthma no longer recommends SABA taken as-needed as the preferred reliever therapy.[4] Prescription of three or more SABA inhalers per year is associated with increased risk of poor clinical outcomes in asthma as well as hospitalisation.[4]

Ambition Zero Carbon

The most common reliever inhalers in asthma care include hydrofluoroalkane (HFA) propellants responsible for GHG emissions, which have a climate impact.[18] AstraZeneca has committed to converting its respiratory inhalers containing HFA propellants to near-zero Global Warming Potential (GWP) propellants. The conversion to near-zero inhalers is part of AstraZeneca's wider Ambition Zero Carbon programme, which aims to achieve zero carbon emissions from operations across the world by 2025 and to ensure our entire value chain is carbon negative by 2030, bringing forward decarbonisation plans by more than a decade.

SABINA

The SABA Use IN Asthma (SABINA) global programme, funded by AstraZeneca, is the largest real-world data analysis to evaluate prescriptions and clinical outcomes related to SABA use in asthma, consisting of a framework of harmonised, large-scale observational studies across 40 countries.[20]

SABINA includes over 1.5 million asthma patients globally and has four main pillars:

- SABINA I – Retrospective observational database study in the UK.
- SABINA II – Retrospective observational database study in 8 countries (France, Germany, Italy, Netherlands, Spain, Sweden, Canada and Israel).
- SABINA III – Cross-sectional study conducted in 25 countries across 5 continents.
- SABINA+ – Multi-design extended pillar for countries that joined after initiation of the programme (China, Hong Kong, Morocco, Poland, Romania, Switzerland, and the US).

Results from the SABINA programme published to date have shown that prescription or collection of three or more SABA inhalers per year is associated with poor asthma control, approximately twice the number of exacerbations compared with low SABA users (prescribed 0-2 inhalers/year) and increased asthma-related healthcare utilisation.[2,3]

About the AstraZeneca

AstraZeneca is a global, science-led biopharmaceutical company that focuses on the discovery, development and commercialisation of prescription medicines, primarily for the treatment of diseases in three therapy areas - Oncology, Cardiovascular, Renal & Metabolism and Respiratory. The Company also is selectively active in the areas of autoimmunity, neuroscience and infection. AstraZeneca operates in over 100 countries and its innovative medicines are used by millions of patients worldwide. AstraZeneca operates in five different locations in the UK, where around 8,300 employees work in research and development, manufacturing, supply, sales and marketing. We supply 40 different medicines. The UK is also an important location for AstraZeneca's clinical trials; in 2018, we undertook 201 trials in the UK, involving 376 centres and over 7,000 patients. For more information, please visit www.astrazeneca.co.uk

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