The path to a sustainable future for inhalation products

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The climate impact of propellants used in pressurised metered-dose inhalers is well-documented and has received significant attention in recent years. In response, a number of promising compounds with lower global warming potential are the subject of ongoing research. Whilst propellants represent the largest climate change contributor of inhalation products, many other aspects across all product types affect not only global warming, but also the wider environment. Sustainability is increasingly important to patients and healthcare providers and is a significant driver of product choices. The full product life cycle must be considered, from use of resources through processing of materials, manufacture, qualification, transport, usage and disposal. At all stages environmental harm can and does occur, from climate change to depletion of finite natural resources and aquatic ecotoxicity. As devices become increasingly connected, harmful electronics production processes and waste must also be considered.

We examine routes to achieve sustainability in inhalation products whilst maintaining the safety and efficacy at their core. As product developers we have the power to effect significant change at the design stage through considered architectural choices and careful use and specification of materials. Design decisions are quantified using tools such as life cycle analysis, which allows a holistic view of environmental impact. Other avenues include changing and challenging use paradigms, using materials which are sustainably sourced, and designing for safe disposal and recycling of devices. Finally, investment in developing radical new delivery technologies has the potential to create brand new product categories which can permanently alter the landscape.