

LOW CARBON HUB BOARD

Date: 03rd October 2017

Subject: ENVIRONMENTAL IMPACT OF INHALERS

Report of: Mark Atherton, Asst Director Environment

PURPOSE OF REPORT

Recent discussions have been held with Glaxo Smithcline Beecham (GSK) on Greater Manchester's carbon footprint and how this could be reduced. This paper outlines a case study, produced by GSK (Annex 01), on the carbon impact of switching from traditional inhalers to dry powder inhalers at a relatively comparable cost.

The purpose of this paper is partly to highlight this case study, but also to reflect upon how public policy and procurement can influence the speed of low carbon innovation more generally.

We are currently only aware of GSK as having such a comprehensive offering of dry powder inhalers in the market. Low Carbon Hub are keen to promote wider production and take up of low carbon technologies and would be pleased if other companies would get in touch if they think they have a role to play in significantly reducing Greater Manchester's carbon footprint.

RECOMMENDATIONS:

The Board is requested to:

- Note the case study (Annex 01).

CONTACT OFFICER:

Email: mark.atherton@greatermanchester-ca.gov.uk

Tel: 07834 174132

TRACKING/PROCESS		
Does this report relate to a Key Decision, as set out in the GMCA Constitution or in the process agreed by the AGMA Executive Board		No
EXEMPTION FROM CALL IN		
Are there any aspects in this report which means it should be considered to be exempt from call in by the AGMA Scrutiny Pool on the grounds of urgency?		NA
AGMA Commission	TfGMC	Scrutiny Pool
03 rd October 2017	NA	NA

GSK – Environmental Impact of Inhalers, Positioning Statement

Healthcare and Inhalers

- Healthcare procurement, as highlighted by the government's Sustainable Development Unit (SDU), offers several significant opportunities for carbon off-set.¹
- Each year around 73 million inhalers are prescribed for people with asthma and chronic obstructive pulmonary disease (COPD) in the UK.²
- Traditional inhalers (pressurised Meter Dose Inhalers – pMDIs) used for the treatment of common conditions such as asthma and COPD contain greenhouse gases (HFAs) that are either discharged into the local environment during use by patients or left unused to be thrown out into the household waste chain.
- The UK remains far more reliant on this traditional inhaler technology than many other EU countries – e.g. UK 70% reliant; Sweden 10%.³
- Other inhalers (Dry Powder Inhalers – DPIs) are available that do not contain greenhouse gases but can deliver equivalent clinical effectiveness.

GSK

- GSK – Ranked 2nd in the Industry Ranking on the Dow Jones Sustainability Index 2017 - is the world's leading producer of inhaler medications and is committed to help deliver undertakings made under the 2008 Climate Change Act.⁴
- By working with key public sector stakeholders and the NHS, GSK believes that a significant carbon off-set can be achieved through a switch to DPI inhalers on a level seen elsewhere in Europe.
- GSK is keen to work with interested parties in relation to purchasing, recycling and training to help make this happen.

Greater Manchester

- If such a switch was made in Greater Manchester, it would achieve an equivalent carbon off-set to LED-lighting Bolton, Bury, Manchester, Salford, Stockport, Tameside, Trafford, and Wigan or planting 3 million trees across the county.⁵

Background

Global warming and climate change are recognised threats to public health. This is particularly true in regards to lung health and a Lancet Report (2015) has called out addressing climate change as the single biggest public health opportunity of our age.⁶

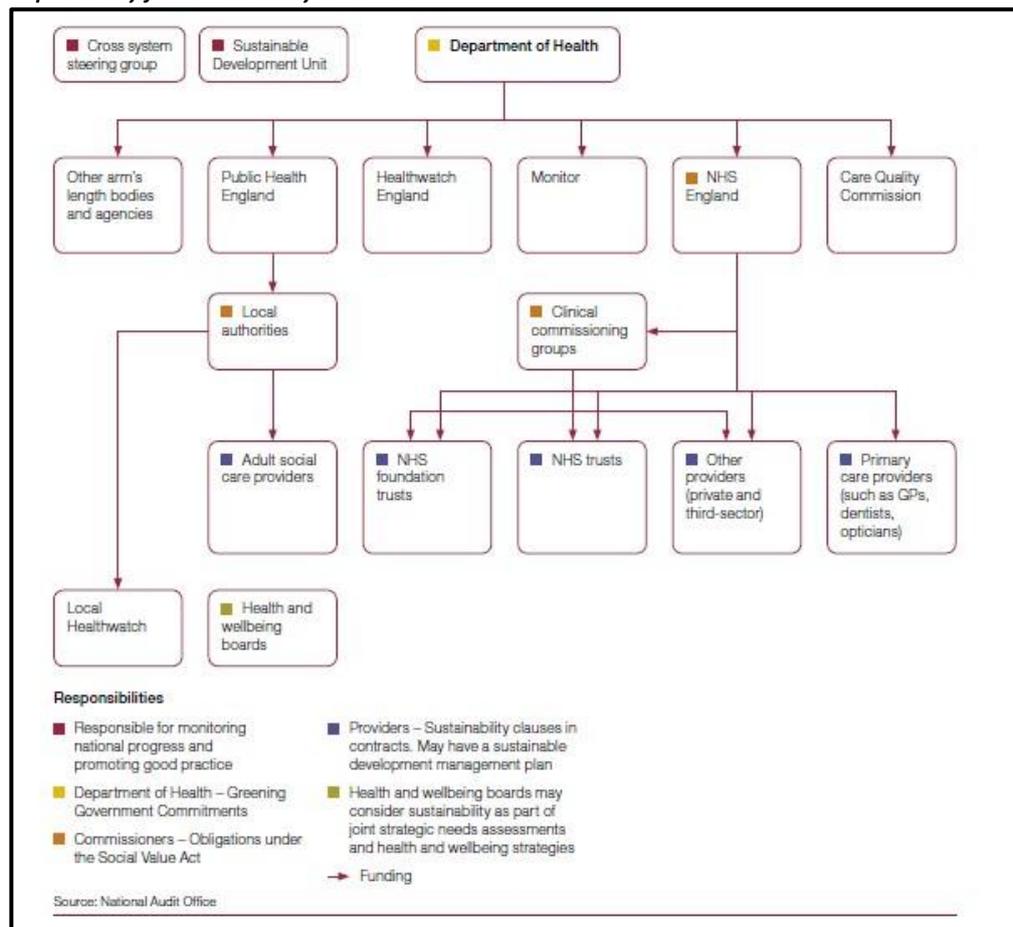
GSK and the NHS, along with all major public and private businesses and organisations in the UK, are bound by the targets set out in the Climate Change Act (2008) and are tasked with reducing their carbon footprint by 80% ahead of the 2050 deadline. A key milestone on this journey is to achieve a 25% reduction in carbon footprint by 2020.⁷

Currently, 61% (15 million tonne CO₂e) of the NHS total carbon footprint (25 million tonne CO₂e) comes from procurement. Of this procurement footprint, 35% (5.2 million tonne CO₂e) comes from medicines; 80% (4.0 million tonne CO₂e) of which is generated by prescriptions issued in primary care.¹ For most medicines, carbon footprint is driven by manufacturing (electricity, buildings, transport etc.) and does not directly impact on the patients and the locality in which the medicine is prescribed.¹

This is not the case for pMDI. These medicines have a significant carbon footprint (800,000 tonne CO₂e in England); most of which is caused by using the inhalers themselves. This is because of the significant global warming potential of the propellant used to discharge the medicine.⁸

Both GSK, and accountable local NHS bodies, have a responsibility to reduce the environmental impact of inhalers and, de facto, their total carbon footprint. Not least because lower carbon alternative inhalers are now available and because the UK retains a historically high (70%) reliance on pMDI inhalers compared to other EU countries such as Sweden where reliance on pMDI inhalers is as low as 10%.³

Figure 1 High Level Responsibility for sustainability in the NHS¹



Sustainability Development Unit (SDU) Guidance

The government agency, SDU, responsible for supporting reductions in NHS carbon emissions has identified 20 medicines that the NHS and its suppliers should focus on to address challenges relating to the environmental impact of prescribing in primary care. 5 of these medicines are inhalers.⁴

Figure 2 Priority list of high greenhouse gas impact pharmaceuticals in the NHS⁹

BNF CHEMICAL NAME	ASSOCIATED BNF SECTION NAME
Adalimumab	Drugs Used In Rheumatic Diseases & Gout
Amoxicillin	Antibacterial Drugs
Atorvastatin	Lipid-Regulating Drugs
Beclometasone Dipropionate	Corticosteroids (Respiratory)
Budesonide	Corticosteroids (Respiratory)
Co-Codamol (Codeine Phos/Paracetamol)	Analgesics
Co-Dydramol (Dihydrocodeine/Paracet)	Analgesics
Enteral Nutrition	Oral Nutrition
Etanercept	Drugs Used In Rheumatic Diseases & Gout
Fluticasone Propionate (Inh)	Corticosteroids (Respiratory)
Gabapentin	Antiepileptics
Ibuprofen	Soft-Tissue Disorders & Topical Pain Rel
Metformin Hydrochloride	Drugs Used In Diabetes
Naproxen	Drugs Used In Rheumatic Diseases & Gout
Paracetamol	Analgesics
Salbutamol	Bronchodilators
Simvastatin	Lipid-Regulating Drugs
Sodium Valproate	Antiepileptics
Sulfasalazine	Chronic Bowel Disorders
Tiotropium	Bronchodilators

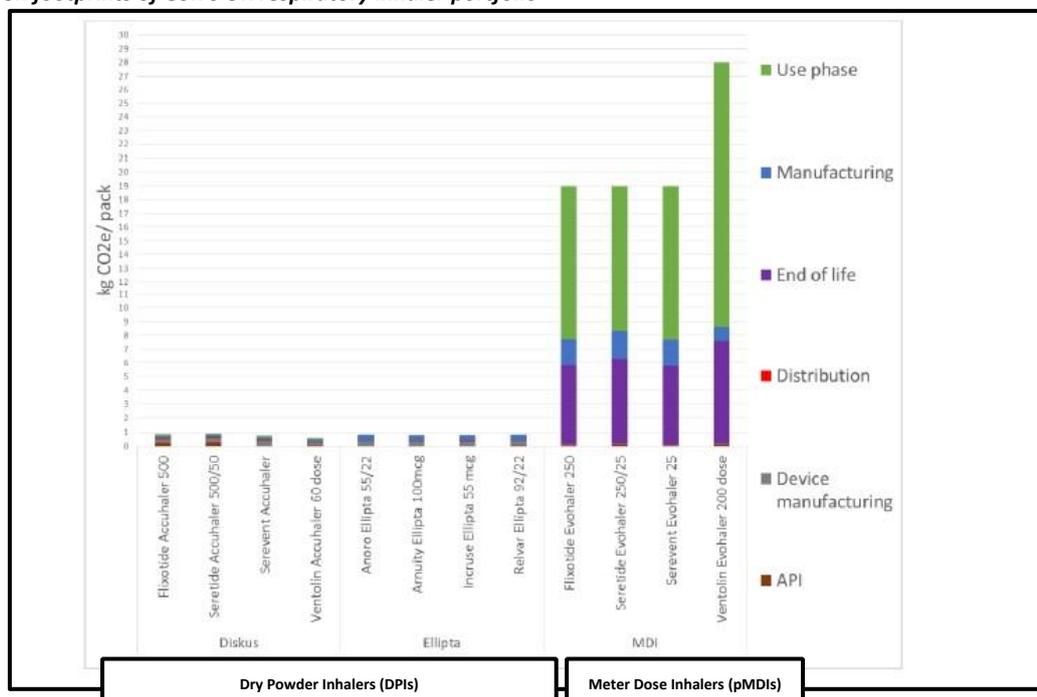
GSK

GSK is the only pharmaceutical company to provide lower carbon alternatives to pMDI inhalers across all classes of inhalers prescribed in the respiratory therapy area in the UK. These lower carbon, DPIs, have a carbon footprint as much as 19 times smaller than pMDIs and, in many cases, are available at either lower acquisition cost, or negotiable rebate prices, than their pMDI equivalents.

In addition, GSK provides an inhaler recycling and recovery scheme, ‘Complete the Cycle’, which to date has collected and recycled over 1 million inhalers, as well as extracting and repurposing any unused propellant collected.¹⁰

NB – In the absence of any other work done by competitor companies, it is fair to assume that the carbon footprints detailed below are representative of ‘typical’ pMDI and DPI inhalers available in the UK today.

Figure 3 The carbon footprints of GSK’s UK respiratory inhaler portfolio¹¹



Opportunity for the NHS

The National Audit Office (2016) estimates that as much as 20% of the additional reduction in CO2e that the NHS needs to deliver to hit the targets set out in the Climate Change Act could be achieved from prescription medicines.¹ A reduction in reliance on pMDI inhalers from current levels of 70% to 25% would save the NHS over 900,000 tonne CO2e.³ Most of this saving would accrue in the locality where a switch from pMDI to DPI inhalers took place. Taking Greater Manchester as an example, a switch from pMDI to DPI inhalers could save

45,000 tonne CO₂e; the carbon savings equivalent of re-lamping with LED and with a central management system Bolton, Bury, Manchester, Salford, Stockport, Tameside, Trafford, and Wigan or planting 3 million trees across Greater Manchester.⁵

Accountability

The SDU has set out how NHS and suppliers should work together to reduce the environmental impact of prescription medicines and reported in 2014 that 36% of CCGs had good sustainability reporting within their annual reports.¹²

However, in the case of pMDI inhalers and their impact on the immediate local environment, there is also clearly a role for local authorities to play in relation to sustainability in health and social care. This is clearly set out in the National Audit Office Report (2016)¹, which shows Local Authorities and CCGs having equal responsibility under the Social Values Act.

State of Play

To date, GSK has taken significant steps to both understand and reduce the carbon footprint of its inhalers. Development work is underway to produce lower carbon propellants for pMDI inhalers, as well as exploratory work to produce non-carbon propellants in the future. Currently, GSK has DPI versions of all the commonly used classes of inhalers in the UK and, therefore, already has the means to support the NHS to achieve the levels of CO₂e reductions set out above.

In terms of reliance on pMDI inhalers, the NHS has retained a high ratio of 70:30 (pMDI:DPI) over the past number of decades but key national bodies, such as the British Thoracic Society (BTS) are now advocating change. In their recent Environmental position statement¹³, BTS noted that:

'Complete elimination of pMDIs may not be possible due to patient preference and the need to generate sufficient inspiratory flow to activate the DPIs. However, BTS encourages all prescribers and patients to consider switching pMDIs to DPIs whenever they are likely to be equally effective. When making a switch, clinicians need to ensure that patients learn and maintain the correct technique. Changing devices can also be used as an opportunity to optimise the patient's therapy, and to simplify their inhaler technique by making all the patient's devices DPIs, which are inhaled in the same way.'¹³

GSK is ready to take up the SDU's call for suppliers to work with the NHS to help reduce the environmental impact of healthcare procurement and, in-line with the BTS statement above, is ready, specifically, to do so in respect to inhaler medications.

References

1. National Audit Office, NHS and sustainability – Briefing for the House of Commons, Environmental Audit Committee, March 2015, full report available from <https://www.nao.org.uk/report/nhs-and-sustainability/> [last accessed 9th August 2017]
2. Data on File, August 2017 (QuintilesIMS XBPI/HPAI, Units, Jan 16 – April 17) UK/RET/0081/17
3. BMJ, Inhaled drugs and global warming: time to shift to dry powder inhalers, T.Hillman et al, BMJ Editorials, BMJ 2013;346:f3359 doi: 10.1136/bmj.f3359 (Published 28 May 2013)
4. S&P Dow Jones Indices, ROBECOSAM, Results Announced for 2017 Dow Jones Sustainability Indices Review, report available from <http://www.sustainabilityindices.com/images/170907-djsi-review-2017-en-vdef.pdf> [last accessed 14th Sept 2017]
5. Greater Manchester CDP Cities submission 2016, report available from <https://www.cdp.net/sites/2016/98/35898/CDP%20Cities%202016/Pages/DisclosureView.aspx> (last accessed 15 sept 2017)
6. The Lancet Commissions, Health and climate change: policy responses to protect public health, Lancet 2015; 386: 1861–914, June 23, 2015
7. GSK Our commitments, available from <http://uk.gsk.com/en-gb/responsibility/our-planet/our-commitments/> [last accessed 14th Sept 2017]
8. Carbon update for the health and care sector in England 2015, NHS Sustainable Development Unit, January 2016, available from <http://www.sduhealth.org.uk/policystrategy/reporting/hcs-carbon-footprint.aspx> [last accessed 9th August 2017]
9. Identifying High Greenhouse Gas Intensity Prescription Items for NHS in England, NHS Sustainable Development Unit, February 2014, available at <http://www.sduhealth.org.uk/areas-of-focus/carbon-hotspots/pharmaceuticals.aspx> [last accessed 9th August 2017]
10. Data on File, August 2017 (Inhaler Recycling Report May 2017) UK/RET/0037/15(3)
11. GSK Inhalers Product Carbon Footprint Certification Summary Report, Carbon Trust Certification Services, August 2017
12. NHS Sustainable Development Unit, Identifying High Greenhouse Gas Intensity Prescription Items for NHS in England, Environmental Resources Management, February 2014
13. British Thoracic Society (BTS), The Environment and Lung Health Position Statement, January 2017