LOW CARBON FOOTPRINT INHALERS IN ENGLAND: A REVIEW OF DISPENSING DATA

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Introduction: Due to propellants, metered dose inhalers (pMDIs) have a higher carbon footprint than low carbon footprint inhalers (LCFIs), such as dry powder or soft mist inhalers (1). Consequently, pMDIs contribute 3.5% of the NHS's CO_2 equivalent emissions (2). Local and national guidelines (NICE, British Thoracic Society) have attempted to increase use of LCFIs, but their effects and factors influencing success are unknown.

Aim: To investigate temporal and geographical variation in LCFI dispensing in England over five years.

Methods: Clinical commissioning group (CCG) dispensed items (March 2016-February 2021) were obtained from openprescribing.net for five classes of inhaler where a choice between pMDIs and LCFIs is available: short-acting beta-agonists (SABAs), long-acting beta-agonists (LABAs), inhaled corticosteroids (ICS), ICS plus LABA inhalers (ICS/LABA) and ICS/LABA plus long-acting muscarinic antagonist inhalers (ICS/LABA/LAMA). CCG population age profiles were obtained from the Office for National Statistics. CCG emergency hospital admission and mortality rates were obtained from Public Health England. CCG formularies and guidelines were reviewed to identify where guidance is available to prescribers.

To control for total inhaler dispensing, the key measure used is the %LCFI: the number of LCFI items dispensed relative to the total number of pMDI and LCFI items. Multivariate regression models were used to investigate geographical variation.

Results: The total annual %LCFI increased from 19.5% to 26.3% over the study period. This was driven by the introduction of ICS/LABA/LAMA inhalers in 2018, as %LCFI decreased for SABA, ICS and ICS/LABA inhalers. %LCFI varied between classes. In the final year, it ranged from 6% for both SABA and ICS inhalers, to 41.2% and 43.9% for ICS/LABA and ICS/LABA/LAMA inhalers, respectively. Interestingly, the cost per item for ICS/LABA and ICS/LABA/LAMA inhalers was similar for both pMDIs and LCFIs, but for SABA and ICS inhalers LCFIs were more expensive.

%LCFI in the final year varied between CCGs (10.7% to 30.9%). The North West, and Birmingham and London areas had consistently higher %LCFI for all classes. For SABA and ICS inhalers, both the presence of advice on climate change in CCG guidelines or formularies, and greater CCG asthma prevalence, were significantly associated with higher %LCFI ($p<0.05$). The proportion of CCG population <15 years had a significant negative association with %LCFI for ICS and ICS/LABA inhalers ($p<0.05$). There were no clinically significant associations between %LCFI and either emergency hospital admission or mortality rates.

Conclusion: Current initiatives have not been successful in increasing the use of LCFIs, indicating limited implementation of guidelines for unknown reasons. Further action is required to reduce the carbon footprint of inhaler prescribing. Actions to address the financial disincentives to LCFI prescribing, CCG leadership (e.g. guidelines) and the appropriate use of LCFI in young people should be considered. Research into facilitators and barriers to LCFI use would support this. An important limitation is the use of dispensed items data rather than the number of inhalers, although there is no evidence that the number of inhalers per item varies between pMDIs and LCFIs. In addition, the Covid-19 pandemic disrupted prescribing patterns and long-term NHS projects.

References

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Theme 5: Safe use of medicines

DEVELOPMENT AND IMPLEMENTATION OF STRATEGIC FRAMEWORKS FOR POLYPHARMACY MANAGEMENT IN HEALTHCARE ORGANISATIONS: A SCOPING REVIEW

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Introduction: 'Polypharmacy management' (PM) guidelines exist (1) but there are challenges to implementation and WHO recommends theory-based organisational change strategies to address this (2).

Aim: To identify current evidence base around the development and implementation of strategic frameworks for polypharmacy management in healthcare organisations.

Methods: The Arksey and O'Malley framework and the PRISMA Scoping Reviews extension were used. Databases (Medline, IPA, CINAHL and Business Source Complete) were searched to December 2020. After title and abstract screening full text articles were reviewed. Search, data extraction and eligibility criteria were defined (table). Included studies were charted to collate extracted information and a descriptive narrative approach to data synthesis was taken. All steps involved independent checks by two team members with disagreement mediation by a third.

Results: Initially 702 records were identified after removal of duplicates, 632 of these were excluded after screening leaving 70 papers. A further 63 of these 70 papers were excluded after full text review. The seven papers remaining met the eligibility criteria fully and showed: despite wide availability of polypharmacy guidelines in the West, particularly the UK and European Union, there is limited evidence on the strategic development and implementation of PM frameworks. The main characteristics of strategic approaches used included: Kotter's eight step