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Title: Innovative dry powder inhaler (DPI) shows improved cost-effectiveness compared with current DPIs for asthma therapy in UK primary care

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Body: Background and aims: Dry powder inhalers (DPI) when used to deliver inhaled steroids have been associated with improved outcomes. We aimed to study the cost-effectiveness of budesonide EH (Easyhaler®) compared with other DPIs. Methods: Retrospective study using UK Clinical Practice and Optimum Patient Care Research Databases. Patients 6-80 yrs, changing from any other budesonide DPI to EH with ≥ 2 asthma prescriptions in outcome and baseline year and a diagnostic asthma code, were matched 1:1 (n=2453:2453) on baseline demographic and disease characteristics to patients continuing on previous DPI. Outcomes: Severe exacerbations (ATS/ERS defined), risk-domain asthma control (no severe exacerbations, lower respiratory infection + antibiotics, or out-patient attendance) over the outcome year. Differences in respiratory-related healthcare costs and proportions achieving asthma control were modeled using generalized linear models. Results: EH is at least as effective as DPI in achieving asthma control (adjusted odds ratio [95%CI] 1.09 [0.90–1.33] DPI = 1.00) and control of exacerbation rates (adjusted rate ratio [95% CI] 0.93 [0.74-1.18]). From 1000 bootstrapped samples, there was 75% probability EH was dominant (less costly, more effective) compared with other DPIs.

Conclusions: Results indicate that EH is a cost-effective alternative to other DPIs in patients changing inhaler device.