managing their own asthma also significantly improved following the intervention (pre-intervention mean 4.1 [SD 2.5] versus post-intervention mean 8.9 [SD 1.1]; paired t-test <0.001; n=24). Total number of hospital admissions and emergency department attendances did not decrease compared to the previous year's data during this period (308 in 2016 versus 352 in 2017).

Conclusion Results to-date show that this integrated and responsive service for asthma exacerbation is well utilised and demonstrates a significant improvement in patient reported asthma control and confidence in self-managing their condition.

P198 FENO AND BLOOD EOSINOPHILS AS BIOMARKERS IN PREDICTING ASTHMA EXACERBATIONS

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Introduction and Objectives Blood eosinophil counts (Bl–Eos) and fractional exhaled nitric oxide concentrations (FeNO) are established biomarkers in asthma. While patients with raised Bl–Eos are at increased risk of asthma exacerbations, it is unclear whether raised FeNO is associated with further increased risk. We sought to determine if raised Bl–Eos combined with raised FeNO was associated with increased frequency of asthma exacerbations.

Methods This was a cross-sectional study of data from the Optimum Patient Care Research Database. Patients included were aged 18–80 years with ≥1 year of continuous electronic health records prior to their most recent FeNO readings, had evidence of asthma, had received ≥1 inhaled corticosteroid prescription, and had Bl–Eos recorded within 5 years of FeNO reading. Cohorts were determined by: Bl–Eos raised ($\geq 0.25\times10^9$/L, a cutoff representing the sample mean) and not raised ($<0.25\times10^9$/L) and, FeNO raised (≥35 ppb) and not raised (<35 ppb). Patients were directly matched on age, sex, and smoking status. Patients with (i) raised Bl–Eos and not raised FeNO, (ii) raised FeNO and not raised Bl–Eos, or (iii) both biomarkers raised were compared with reference patients (neither biomarker raised). Comparison of exacerbations (evidenced by acute oral corticosteroid prescription or unplanned asthma-related hospital attendance) was conducted using conditional Poisson regression.

Results The unmatched study population consisted of 610 patients (mean age 52, 38% male, 46% non-smokers). With 1:1 matching, both the (i) raised Bl–Eos and not raised FeNO cohort (n=186) and the (ii) raised FeNO and not raised Bl–Eos cohort (n=98) demonstrated a trend toward greater exacerbation rates (unadjusted rate ratio: 1.41 [95% CI 0.91, 2.19] and 1.35 [95% CI 0.99 1.84], respectively) vs. reference group. Importantly, however, when both biomarkers were raised (n=53), a significantly greater exacerbation rate was observed (1.72 [95% CI 1.00, 2.93]).

Conclusion The combination of raised FeNO and raised Bl–Eos was associated with a greater exacerbation rate compared with neither biomarker raised. FeNO and Bl–Eos are simple primary care measurements that could reliably predict exacerbation risk for asthma patients. This should be confirmed prospectively in larger populations.

Please refer to page A258 for declarations of interest in relation to abstract P198.

P199 ADVERSE EVENTS PROFILE OF ORAL CORTICOSTEROIDS AMONG ASTHMA PATIENTS IN THE UK

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Background and Objectives Previous studies have linked oral corticosteroid use in asthma patients to various adverse events. This study aimed to assess in more depth than has previously been done the toxicity profile of oral prednisolone among adult asthma patients.

Methods Using data from the UK-based Clinical Practice Research Datalink, we conducted a series of cohort studies, each with a nested case-control analysis, to quantify the risk of 11 different potential corticosteroid-related adverse events.

Results Incidence rates per 1000 person-years of potential corticosteroid-related adverse events in patients with new current use of oral prednisolone ranged from 1.4 (95% confidence interval [CI], 1.0–1.8) for peptic ulcer to 78.0 (95% CI, 74.8–81.2) for severe infections. After adjusting for confounding, current oral prednisolone use was most strongly associated with an increased risk of severe infection (odds ratio [OR] 2.16; 95% CI, 2.05–2.27) compared with non-use of prednisolone. There were smaller elevated risks of peptic ulcer (OR 1.47; 95% CI, 1.12–1.92), affective disorders (OR 1.47; 95% CI, 1.32–1.63), herpes zoster (OR 1.32; 95% CI 1.19–1.48), cardiovascular events (OR 1.33; 95% CI 1.18–1.49), diabetes mellitus type 2 (OR 1.35; 95% CI 1.22–1.49), bone related conditions (OR 1.27; 95% CI 1.17–1.37), and cataract at higher cumulative doses (cumulative dose ≥2000 mg: OR 1.43; 95% CI 1.17–1.73), compared with non-use of prednisolone. We did not observe an association between current oral prednisolone use and glaucoma, chronic kidney disease, or hypertension. Past use of oral prednisolone was not associated with any of the study outcomes. We observed possible dose-response relationships between current oral prednisolone use and the risk of cardiovascular events, affective disorders, bone-related conditions, severe infections, diabetes mellitus type 2, and cataract, but not the other investigated outcomes.

Conclusion Oral prednisolone use is associated with an increased risk of infections, gastrointestinal, neuropsychiatric, ocular, cardiovascular, metabolic, and bone-related complications among adult asthma patients. The risk is associated with current but not past use of oral prednisolone use, and for some outcomes with the prescribed dose of oral prednisolone.