CO₂ emission was calculated using CO₂ emission factor 13.8 kg/visit for ER/hospital visits² and CO₂ emission factor 140 g/puff for rescue medication use.

Results 1,842 patients were assessed for ER/hospital visits and 1,800 patients for rescue medication use. IND/GLY/MF high- and medium-dose suggested reductions in ER/hospital visits (rate ratio [RR] 0.66, 0.43 to 1.01 and RR, 0.87, 0.57 to 1.33) versus SAL/FLU high-dose, which would corresponds to a change of 9.1 (5.9 to 13.9) and 12.0 (7.9 to 18.4) kg CO₂ emission per visit, respectively. The difference in mean daily puffs of rescue medication with IND/GLY/MF high- and medium-dose versus SAL/FLU high-dose, was -0.12 (-0.27 to 0.03) and -0.06 (-0.20 to 0.09), respectively, which corresponds to a change of 6.1 (-13.8 to 1.5) and 3.1 (-10.2 to 4.6) kg CO₂ emission per year, respectively.

Conclusions All three-treatment arms of the study significantly reduced CO₂ emissions compared with MDIs. However, indacaterol/glycopyrronium/mometasone furoate resulted in numerical reductions of ER/hospital visits, which suggests increased CO₂ savings versus salmeterol/fluticasone. These results should be cautiously interpreted as our calculations are based on a limited number of variables that affect the carbon footprint. Nonetheless, these results might be used as a basis for conducting studies on carbon footprint in patients with asthma.

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Please refer to page A188 for declarations of interest related to this abstract.

S4 ASTHMA IN THE EMERGENCY DEPARTMENT. OUTCOME FROM SPECIALIST NURSE INTERVENTION

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10.1136/thorax-2021-BTSAbstracts.10

In an attempt to improve asthma care of patients attending the Emergency Department (ED) we offer Specialist Asthma

Nurse intervention post ED attendance. Between October 2018 and March 2019, nurse led appointments were offered to 116 asthmatic who had recently attended ED. Fifty seven attended this appointment, these patients underwent spirometry, FENO, inhaler technique and compliance checks. Treatment was stepped up if asthma control was deemed poor and further nurse led follow up arranged if needed.

We compared ED attendances between these 57 and the 59 who did not attend over the next 18 months. Those that had the intervention had fewer ED visits 8 versus 47, less steroid use 20 versus 28,, better compliance 41/57 versus 25/59, Chi 2 <0.05. They were also more likely to receive a personalised care plan 49/57 v 0/59.

The group who did not attend had 37 attendances in the 18 months before the intervention and 47 in the 18 months post intervention compared to 31 before and 8 after intervention in the group who did attend the nurse led appointment.

Although the 2 groups were not controlled or randomised these results do show improved management and suggest improved outcomes. The decrease in ED attendances was more marked than the decrease in courses of Prednisolone. This may reflect that those following action plans were taking steroids appropriately and so avoiding admission. It also suggests that not all asthmatics attending ED are given Prednisolone. The problem of dealing with the group who failed to attend remains.

S5 MORTALITY ANALYSES ON SYSTEMIC CORTICOSTEROID USE: A LONG-TERM OBSERVATIONAL STUDY

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10.1136/thorax-2021-BTSAbstracts.11

Introduction and Objective Exposure to systemic corticosteroids (SCS) is associated with higher risks of adverse outcomes, higher healthcare resource utilization, and associated costs in patients with asthma. There is limited information about the relationship between SCS exposure and mortality. The objective of this analysis was to evaluate the association between SCS exposure and mortality among patients with asthma in the United Kingdom.

Abstract S5 Figure 1 Association of cumulative SCS dose and average SCS daily exposure with risk of death among patients with asthma (N=9413)

Methods In this retrospective open cohort analysis of the Clinical Practice Research Datalink (CPRD) database from 1979–2019, patients with asthma (≥ 18 years of age) were followed from the first recorded prescription of SCS until occurrence of death or end of follow-up. Mortality data was collected through linkage with death registration data from the Office of National Statistics. A time-to-event design with multivariable Cox proportional hazard models adjusting for confounders was used to assess the association between measures of SCS exposure (average daily exposure and cumulative dose) and overall and cause-specific deaths. Hazard ratios (HRs) were calculated for overall and each key adverse outcome-related mortality.

Results Of 9,413 patients with asthma with SCS exposure who were followed for up to 28 years (median 8.7 years), 1,762 died. The most frequent primary cause of death was respiratory disease (30%). The mortality rate was 14–21 per 1000 person-years across SCS-related adverse outcomes of interest with incidence ratios ranging from 1.8 to 2.1. Dose-response relationships of average daily SCS exposure and cumulative SCS with higher risk of death were observed (figure 1). Patients exposed to a cumulative dose ≥ 10 g of SCS were more than twice as likely to die compared with those with <0.5 g. Patients with an average daily exposure ≥ 7.5 mg/day were almost 4.6 times more likely to die compared with those with <0.5 mg/day.

Conclusion In patients with asthma, greater cumulative and average daily SCS exposure was associated with increased mortality.

Stay awake! It's an update on sleep

S6 COVID-19 RELATED CHANGES IN OUTPATIENT CPAP SET-UP PATHWAYS FOR OSA ARE LINKED WITH DECREASED 30-DAY CPAP USAGE

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Introduction The COVID-19 pandemic led to changes in CPAP set-up pathways. Prior to the pandemic, patients received face-to-face (f2f) education, and trialling of CPAP with experienced healthcare professional support. However, trialling CPAP is an aerosol generating procedure and thus became severely limited by infection control guidelines. We aimed to see the impact the necessary practice changes had on CPAP usage.

Methods We conducted a multi-centre retrospective service evaluation of secondary care sleep units. We collected data on consecutive patients commenced on CPAP in July–August 2019 (pre-pandemic) and July–August 2020 (post first-wave). We recorded baseline demographics, sleep study results, CPAP set-up and first follow-up information.

Abstract S6 Table 1 Baseline characteristics from patients. Data are expressed as mean $\pm$ standard deviation, median (first quartile, third quartile) or number (percentage), as appropriate

	2019	2020
Age (years)	53.4 $\pm$ 13.6	53.4 $\pm$ 13.3
Gender		
Female	206 (33.2%)	185 (32.6%)
Male	414 (66.8%)	380 (67.0%)
Ethnicity		
White	476 (76.8%)	383 (67.5%)
Asian	18 (2.9%)	12 (2.1%)
Black	10 (1.6%)	10 (1.8%)
Other	7 (1.2%)	5 (0.9%)
Unknown	109 (17.6%)	157 (27.7%)
BMI (kg/m ²)	34.9 (30.6, 41.0)	34.8 (29.5, 40.4)
ESS	11.2 $\pm$ 5.5	11.8 $\pm$ 5.2
ODI	23.0 (14.1, 43.0)	21.5 (13.0, 41.8)

BMI=body mass index, ESS=Epworth sleepiness score, ODI=oxygen desaturation index $\geq 4\%$.

Results In total, we included 1,187 patients from eight centres who were set-up on CPAP, with 620 set-up in 2019, and 567 in 2020. Patient characteristics of the two groups were comparable (see table 1). In 2019, CPAP set-up was f2f, with CPAP machine turned on, in 613 patients (98.9%). By contrast, in 2020, only 6 (1.1%) patients had set-up f2f with CPAP turned on, with 403 (71.1%) set-up f2f without CPAP being turned on, and 158 (27.9%) set-up remotely. Thirty-day CPAP usage fell significantly from a mean $\pm$ standard deviation of 4.8 $\pm$ 2.6 in 2019 to 3.9 $\pm$ 2.7 hours/night in 2020 (mean effect -0.9 hours/night, 95% Confidence Interval (CI) -1.2 to -0.5 , $p<0.0001$). This effect was similar following multivariable adjustments for age, mode of CPAP set-up (f2f or remote), sex, baseline Epworth Sleepiness Scale (ESS), log Oxygen Desaturation Index 4% (ODI) and centre (-0.6 hours/night, 95% CI -1.2 to -0.3 , $p=0.0006$). CPAP usage was lower with both f2f and remote set-up in 2020, compared with 2019. However, in 2020, CPAP usage was also worse with remote set-up compared to f2f set-up (mean effect -0.6 hours/night, 95% CI -1.1 to -0.1 , $p=0.03$).

Discussion Pathway changes that include set-up without trialling CPAP f2f, particularly remote set-up, were associated with clinically relevant reductions in CPAP usage at 30 days. Changes in practice to reduce risk of infection to patients and staff during CPAP set-up were necessary, but should not be accepted as being equivalent to traditional evidenced-based methods of CPAP set-up.

S7 ESTIMATING THE POTENTIAL IMPACT OF RESIDUAL EDS ON THE QOL OF PATIENTS WITH OSA AND, FOR THE FIRST TIME, THEIR PARTNERS, USING A TIME TRADE-OFF METHODOLOGY

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Introduction and Objectives Excessive daytime sleepiness (EDS) is a common symptom of obstructive sleep apnoea (OSA), persisting in 9% to 22% of patients despite primary airway therapy (residual EDS). EDS can impair work productivity and driving ability, and negatively impact quality of life (QoL) of patients and their partners.