

## **Supplementary material**

### ***Impact of socioeconomic status on participation and outcomes in the Salford***

#### ***Lung Studies***

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## SUPPLEMENTARY TABLES

SUPPLEMENTARY TABLE S1 Patient demographics and baseline characteristics by deprivation quintile in SLS asthma (ICS/LABA therapy subset of total study population<sup>#</sup>; N=2642)

Characteristic	Deprivation quintile <sup>¶</sup>				
	1 (n=551)	2 (n=526)	3 (n=551)	4 (n=511)	5 (n=503)
<b>Age, years, mean (SD)</b>	47.1 (14.9)	48.7 (16.2)	50.2 (16.0)	49.8 (16.7)	55.2 (15.6)
<b>Male, n (%)</b>	213 (39)	201 (38)	229 (42)	198 (39)	196 (39)
<b>BMI, kg/m<sup>2</sup>, mean (SD)<sup>+</sup></b>	31.5 (7.8)	30.8 (7.1)	30.6 (7.3)	29.4 (6.4)	29.0 (5.8)
<b>Current smoker, n (%)<sup>+</sup></b>	187 (34)	138 (26)	117 (21)	74 (15)	45 (9)
<b>Duration of asthma ≥10 years, n (%)</b>	417 (76)	415 (79)	419 (76)	390 (76) <sup>+</sup>	397 (79)
<b>Severe asthma exacerbations in the year prior to randomisation, mean (SD)</b>	0.8 (1.4)	0.8 (1.3)	0.8 (1.4)	0.7 (1.1)	0.6 (1.1)
<b>Uncontrolled asthma (ACT ≤15), n (%)</b>	325 (59)	280 (53)	258 (47)	196 (38)	154 (31)
<b>Daytime symptoms more than twice a week, n (%)<sup>§</sup></b>	504 (91)	487 (93)	510 (93)	465 (91)	456 (91)
<b>SABA use more than twice a week, n (%)<sup>§</sup></b>	441 (80)	420 (80)	414 (75)	343 (67)	289 (57)
<b>Activity limitations in the past week, n (%)<sup>§</sup></b>	342 (62)	314 (60)	324 (59)	247 (48)	239 (48)
<b>Nocturnal symptoms/awakenings in the past week, n (%)<sup>§</sup></b>	341 (62)	295 (56)	290 (53)	250 (49)	225 (45)

SLS: Salford Lung Study; ICS: inhaled corticosteroid; LABA: long-acting beta<sub>2</sub>-agonist; SD: standard deviation; BMI: body mass index; ACT: Asthma Control Test; SABA: short-acting beta<sub>2</sub>-agonist. <sup>#</sup>: the SLS asthma ICS/LABA therapy subset comprised patients whose baseline maintenance therapy per randomisation stratification and pre-randomisation prescription was an ICS/LABA; <sup>¶</sup>: where 1 = most deprived, 5 = least deprived; <sup>+</sup>: based on patients with available data; <sup>§</sup>: based on patients' recall of asthma symptoms in the past week, as assessed at the baseline (randomisation) visit.

**SUPPLEMENTARY TABLE S2** Statistical analysis<sup>#</sup> of LS mean annual rates of on-treatment severe asthma exacerbations by deprivation quintile and treatment group in SLS asthma (total study population and ICS/LABA therapy subset<sup>¶</sup>)

Total study population (N=4218)				ICS/LABA therapy subset (N=2642)			
Deprivation quintile <sup>+§</sup>	LS mean annual rate (95% CI) <sup>§</sup>		Ratio (95% CI)	Deprivation quintile <sup>+§</sup>	LS mean annual rate (95% CI) <sup>§</sup>		Ratio (95% CI)
	FF/VI n=2105	UC n=2113			FF/VI n=1319	UC n=1323	
1 (n=847)	n=408 0.35 (0.29–0.42)	n=439 0.49 (0.42–0.57)	0.72 (0.57–0.91)	1 (n=548)	n=266 0.37 (0.30–0.47)	n=282 0.62 (0.51–0.74)	0.61 (0.46–0.80)
2 (n=828)	n=431 0.45 (0.38–0.52)	n=397 0.39 (0.32–0.46)	1.15 (0.90–1.46)	2 (n=522)	n=275 0.55 (0.46–0.67)	n=247 0.49 (0.39–0.60)	1.13 (0.85–1.50)
3 (n=852)	n=399 0.41 (0.34–0.49)	n=453 0.43 (0.37–0.51)	0.95 (0.75–1.19)	3 (n=548)	n=251 0.51 (0.41–0.62)	n=297 0.57 (0.48–0.69)	0.88 (0.67–1.16)
4 (n=826)	n=422 0.37 (0.31–0.44)	n=404 0.39 (0.33–0.46)	0.96 (0.75–1.23)	4 (n=509)	n=264 0.42 (0.34–0.52)	n=245 0.46 (0.37–0.57)	0.91 (0.68–1.22)
5 (n=836)	n=429 0.43 (0.36–0.51)	n=407 0.33 (0.27–0.40)	1.31 (1.01–1.69)	5 (n=499)	n=256 0.53 (0.43–0.65)	n=243 0.45 (0.36–0.57)	1.17 (0.87–1.58)

LS: least squares; SLS: Salford Lung Study; ICS: inhaled corticosteroid; LABA: long-acting beta<sub>2</sub>-agonist; CI: confidence interval; FF/VI: fluticasone furoate/vilanterol; UC: usual care; ACT: Asthma Control Test. <sup>#</sup>: analysis using a general linear model assuming an underlying negative binomial distribution with a log-link function and logarithm of time on treatment as an offset variable and adjusted for randomised treatment, asthma maintenance therapy at baseline per randomisation stratification, ACT total score at baseline per randomisation stratification, number of severe asthma exacerbations in the previous year prior to randomisation, age, gender, baseline smoking status, deprivation quintile and randomised treatment-by-deprivation quintile interaction. For the ICS/LABA therapy subset analysis, the model did not include the asthma maintenance therapy at baseline per randomisation stratification variable; <sup>¶</sup>: the SLS asthma ICS/LABA therapy subset comprised patients whose baseline maintenance therapy per randomisation stratification and pre-randomisation prescription was an ICS/LABA; <sup>+</sup>: where 1 = most deprived, 5 = least deprived; <sup>§</sup>: based on patients with available exacerbations data (N=4189 for total study population and N=2626 for ICS/LABA therapy subset).

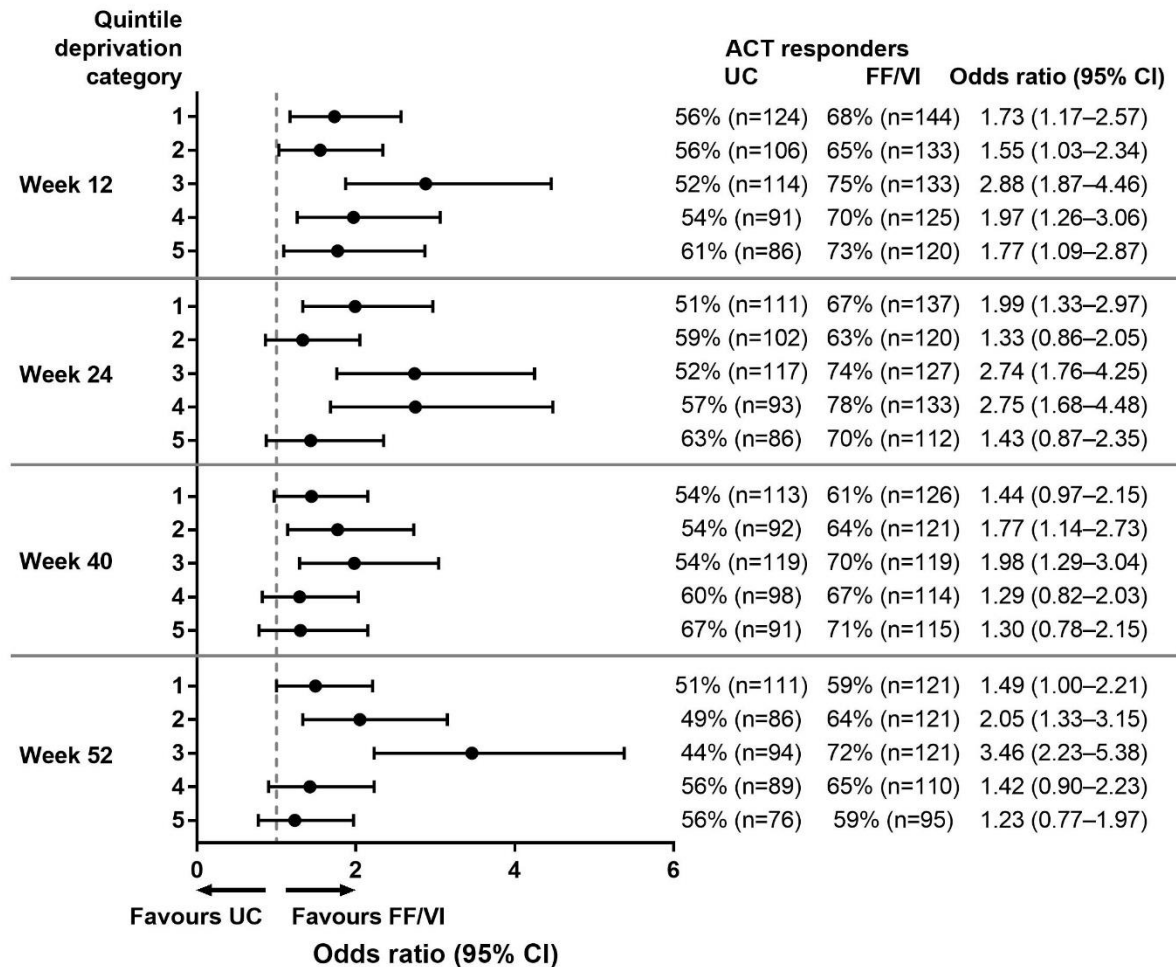
**SUPPLEMENTARY TABLE S3** Statistical analysis of LS mean annual rates of on-treatment pneumonia SAEs by deprivation quintile in SLS COPD (total study population; N=2791)<sup>#¶</sup>

<b>LS mean annual rate</b>			
<b>Deprivation quintile<sup>+</sup></b>	<b>FF/VI (n=1396)</b>	<b>UC (n=1395)</b>	<b>Ratio (95% CI)</b>
<b>1 (n=1453)</b>	n=731 0.08	n=722 0.08	1.03 (0.68–1.56)
<b>2 (n=601)</b>	n=307 0.09	n=294 0.09	1.01 (0.54–1.87)
<b>3 (n=391)</b>	n=189 0.06	n=202 0.06	0.94 (0.38–2.29)
<b>4 (n=209)</b>	n=104 0.07	n=105 0.02	3.75 (0.72–19.49)
<b>5 (n=137)</b>	n=65 0.06	n=72 0.06	1.10 (0.24–4.98)

LS: least squares; SAE: serious adverse event; SLS: Salford Lung Study; COPD: chronic obstructive pulmonary disease; FF/VI: fluticasone furoate/vilanterol; UC: usual care; CI: confidence interval. <sup>#</sup>: the primary analysis of SLS COPD demonstrated a similar incidence of on-treatment SAEs by randomised treatment (29% FF/VI *versus* 27% UC), with no excess pneumonia SAEs in the FF/VI group (7% *versus* 6% UC) [1]; <sup>¶</sup>: analysis performed using a negative binomial regression model with covariates of randomised treatment, deprivation quintile, deprivation quintile by randomised treatment interaction and with logarithm of time on treatment as an offset variable. N=2791 patients with available deprivation data; <sup>+</sup>: where 1 = most deprived, 5 = least deprived.

## SUPPLEMENTARY FIGURES

**SUPPLEMENTARY FIGURE S1** Percentage of ACT responders at weeks 12, 24, 40 and 52 by treatment group stratified by deprivation quintile in SLS asthma (ICS/LABA therapy subset<sup>#</sup> of PEA population; N=1980).<sup>†+§</sup>



ACT: Asthma Control Test; SLS: Salford Lung Study; ICS: inhaled corticosteroid; LABA: long-acting beta<sub>2</sub>-agonist; PEA: primary effectiveness analysis; UC: usual care; FF/VI: fluticasone furoate/vilanterol; CI: confidence interval. <sup>#</sup>: the SLS asthma ICS/LABA therapy subset comprised patients whose baseline maintenance therapy per randomisation stratification and pre-randomisation prescription was an ICS/LABA; <sup>†</sup>: ACT responders were defined as patients who achieved an ACT total score  $\geq 20$  and/or increase from baseline  $\geq 3$ ; <sup>+</sup>: analysis by logistic regression with adjustment for randomised treatment, baseline ACT total score, baseline ACT total score squared, age, gender, baseline smoking status, deprivation quintile and a randomised treatment-by-deprivation quintile interaction term; <sup>§</sup>: for deprivation quintile, 1 = most deprived, 5 = least deprived.

## **SUPPLEMENTARY REFERENCES**

1. Vestbo J, Leather D, Diar Bakerly N, New J, Gibson JM, McCorkindale S, Collier S, Crawford J, Frith L, Harvey C, Svedsater H, Woodcock A; Salford Lung Study Investigators. Effectiveness of fluticasone furoate-vilanterol for COPD in clinical practice. *N Engl J Med* 2016; 375: 1253-1260.