Supplemental Table S1 – Preschoolers (2 – 4 years)

	N	PICU (n=27)	N	Pediatric ward (n=55)	P-value
Male gender, n (%)	27	10 (37)	55	33 (60)	.050
Caucasian, n (%)	27	17 (63)	55	38 (69)	.570
Asthma diagnoses prior to admission, n (%)	27	20 (74)	55	37 (67)	.530
Asthma treated by, n (%) *					
General Practitioner	19	9 (47)	36	10 (28)	**.015**
Pediatrician	19	8 (42)	36	8 (22)	
Pediatric pulmonologist	19	2 (11)	36	18 (50)	
Steroid naïve, n (%)	27	17 (63)	55	32 (58)	.678
Symptoms >1 week prior to admission, n (%)	27	11 (41)	54	14 (26)	.174
Adherence ICS † ‡					
PDC, mean (±SD)	10	83.0 (29)	25	68.4 (28)	.172
PDC ≥80%, n (%)	10	8 (80)	25	11 (44)	.053
Born <37 weeks gestational age, n (%)	21	2 (10)	41	6 (15)	.570
Highest parental education level , n (%)					
Low	21	1 (5)	41	-	.266
Middle	21	9 (43)	41	14 (34)	
High	21	11 (52)	41	27 (66)	
Status scores postal code, mean (±SD) §	27	-0.38 (1.66)	55	-0.44 (1.26)	.609
Non-PICU admission, n (%)	27	16 (59)	50	36 (72)	.255
Admission previous year, n (%)	27	8 (30)	55	21 (38)	.447
Ever to PICU, n (%)	27	3 (11)	55	2 (4)	.184
ED visit previous year, n (%)					
None	21	5 (24)	41	9 (22)	.986
1 – 3 times	21	13 (62)	41	26 (63)	
>3 times	21	3 (14)	41	6 (15)	
Parental reported smoking, n (%)	26	10 (38)	53	13 (25)	.270
Cotinine, n (%)					
Non-smoker	20	13 (65)	43	33 (77)	.328
Passive smoker	20	7 (35)	43	10 (23)	
Allergic sensitization, n (%) ‖	25	14 (56)	54	26 (48)	.516
Multiple sensitization, n (%) **	25	3 (12)	54	2 (4)	.159
Respiratory viral infections, n (%)					
Infection identified	24	18 (75)	51	36 (71)	.691
Rhinovirus infection	24	15 (63)	51	31 (61)	.887
Two or more viruses	24	3 (13)	51	8 (15)	.779

* children with a diagnosis of asthma prior to admission, † of the children with prescribed ICS, ‡ PDC = proportion of days covered in percentages, § The postal code was used to quantify the neighborhood socioeconomic status (SES), with a mean of zero. A lower (negative) score is associated with a lower SES, ‖ Positive RAST = IgE>0.7 kU/L for at least one of the allergens, ** Positive RAST for at least 1 pet, pollen, and house dust mite.

Supplemental Table S2 – School-aged children (5-17 years)

	N	PICU (n=83)	N	Pediatric ward (n=56)	P-value
Age in years, mean (±SD)	83	9.9 (3.5)	56	7.5 (2.5)	**<.001**
Male gender, n (%)	83	58 (70)	56	36 (64)	.489
Caucasian, n (%)	83	43 (52)	56	41 (73)	**.011**
Diagnosed with asthma prior to admission [b]	83	64 (77)	56	42 (75)	.774
Asthma treated by, n (%) *					.510
General Practitioner	63	20 (32)	41	18 (44)	
Pediatrician	63	23 (37)	41	14 (34)	
Pediatric pulmonologist	63	20 (32)	41	9 (22)	
Steroid naïve, n (%)	83	39 (47)	56	35 (63)	.072
Symptoms >1 week prior to admission, n (%)	81	49 (61)	55	11 (20)	**<.001**
Adherence ICS † ‡					
PDC, mean (±SD)	42	70.1 (33)	18	53.9 (31)	.082
PDC ≥80%, n (%)	42	22 (52)	18	5 (28)	.079
Born <37 weeks gestational age, n (%)	63	11 (18)	43	9 (21)	.654
Highest parental education level , n (%)					.900
Low	61	2 (3)	43	1 (2)	
Middle	61	26 (43)	43	17 (40)	
High	61	33 (54)	43	25 (58)	
Status scores postal code, mean (±SD) §	83	-0.26 (1.26)	56	-0.07 (1.29)	.286
Non-PICU admission, n (%)	79	48 (61)	47	33 (70)	.284
Admission previous year, n (%)	81	24 (30)	56	9 (16)	.068
Ever to PICU, n (%)	83	12 (15)	56	4 (7)	.185
ED visit previous year, n (%)					**.014**
None	63	33 (52)	43	12 (28)	
1 – 3 times	63	28 (44)	43	31 (72)	
>3 times	63	2 (3)	43	-	
Parental reported smoking, n (%)	77	18 (23)	55	13 (24)	.983
Cotinine, n (%)					**.017**
Non-smoker	76	61 (80)	46	44 (96)	
Passive smoker	76	15 (20)	46	2 (4)	
Allergic sensitization, n (%) ll	78	65 (83)	56	45 (80)	.658
Multiple sensitization, n (%) **	77	21 (27)	56	13 (23)	.596
Respiratory viral infections, n (%)					
Infection identified	78	38 (49)	53	29 (55)	.500
Rhinovirus infection	78	29 (37)	53	25 (47)	.254
Two or more viruses	78	4 (5)	53	6 (11)	.403

* children with a diagnosis of asthma prior to admission, † of the children with prescribed ICS, ‡ PDC = proportion of days covered in percentages, § The postal code was used to quantify the neighborhood socioeconomic status (SES), with a mean of zero. A lower (negative) score is associated with a lower SES, ll Positive RAST = IgE>0.7 kU/L for at least one of the allergens, ** Positive RAST for at least 1 pet, pollen, and house dust mite.

Supplemental Table S3 – Multiple logistic regression for PICU admission children 5-17 years

Variable	OR	95% CI	*P* value
Steroid naïve	0.689	0.282-1.683	0.414
Age in years *	1.239	1.057-1.452	**0.008**
Female sex	0.674	0.267-1.702	0.403
Caucasian	0.471	0.194-1.144	0.096
Respiratory viral infection	1.563	0.626-3.901	0.338
Symptoms >1 week prior to admission	7.005	2.675-18.338	**<0.001**
Previous PICU admissions	2.125	0.499-9.040	0.308
Positive urinary cotinine (>10 ng/ml)	6.084	1.138-32.526	**0.035**

* continuous variable