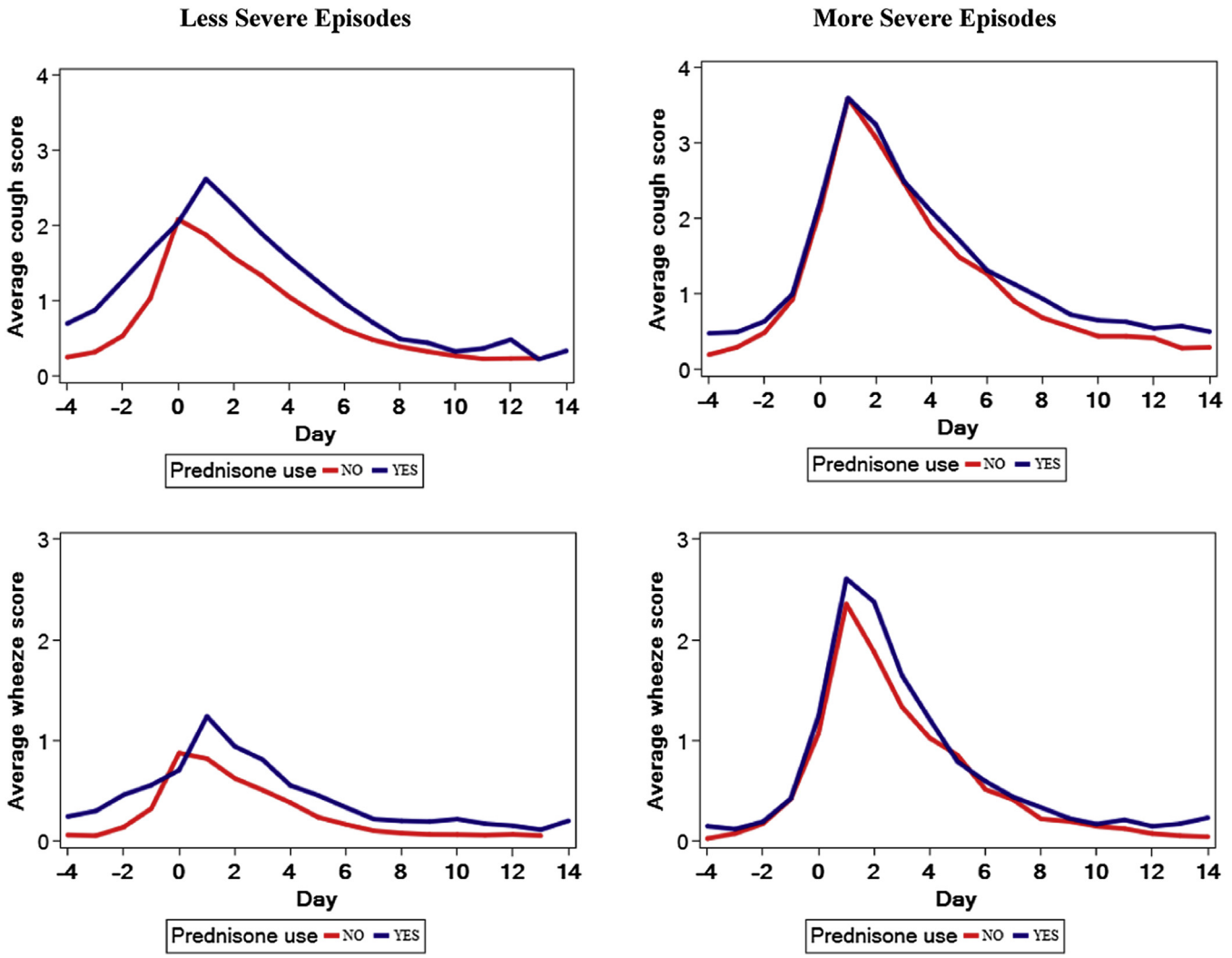

FIG E1. Comparisons of symptom scores in the AIMS cohort between episodes that were or were not treated with OCSs (corresponding to the comparisons detailed in Table IV, without adjustment for propensity score). Data are stratified based on episodes that met and did not meet severity criteria.

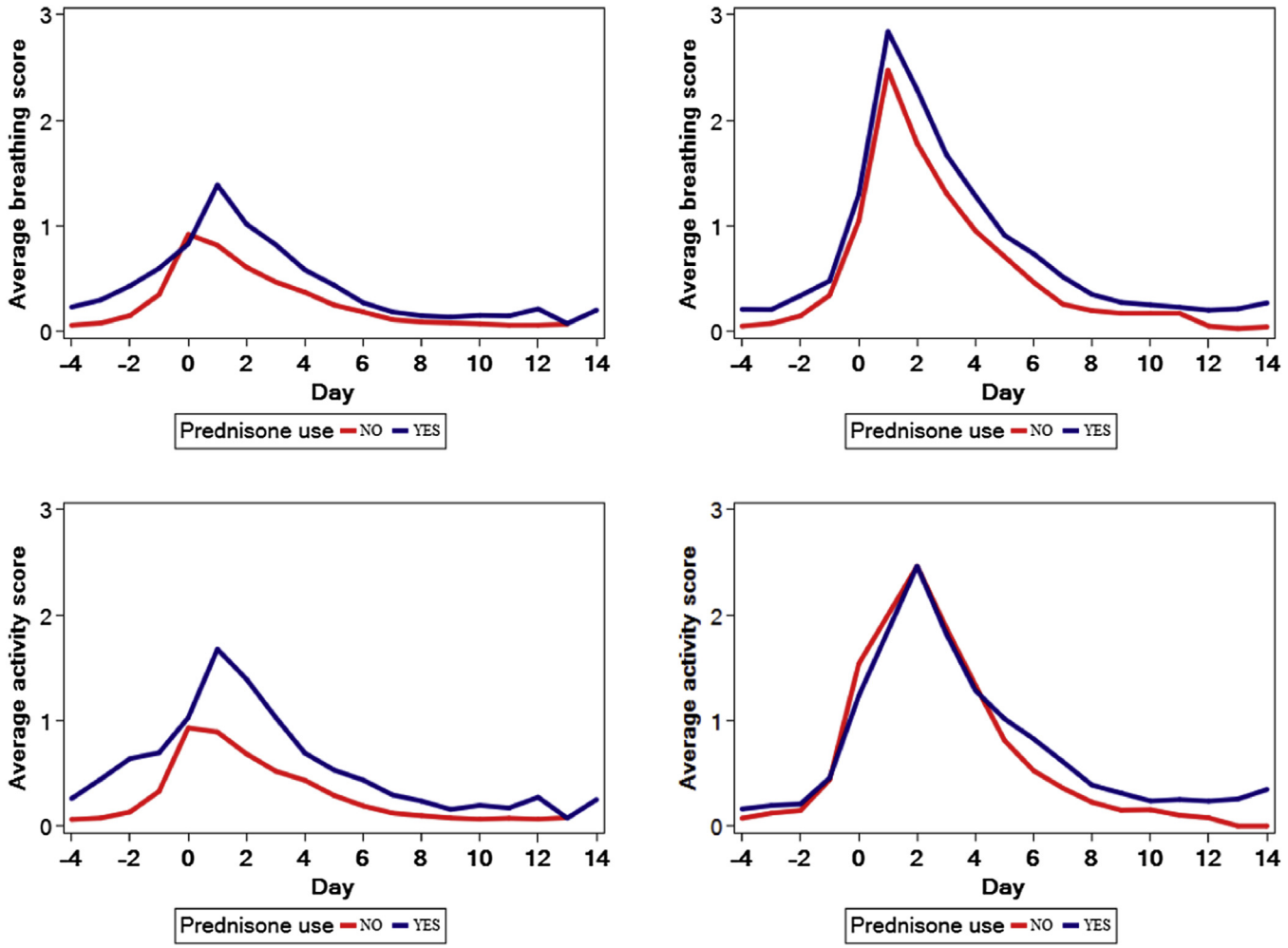

FIG E1. *(Continued)*

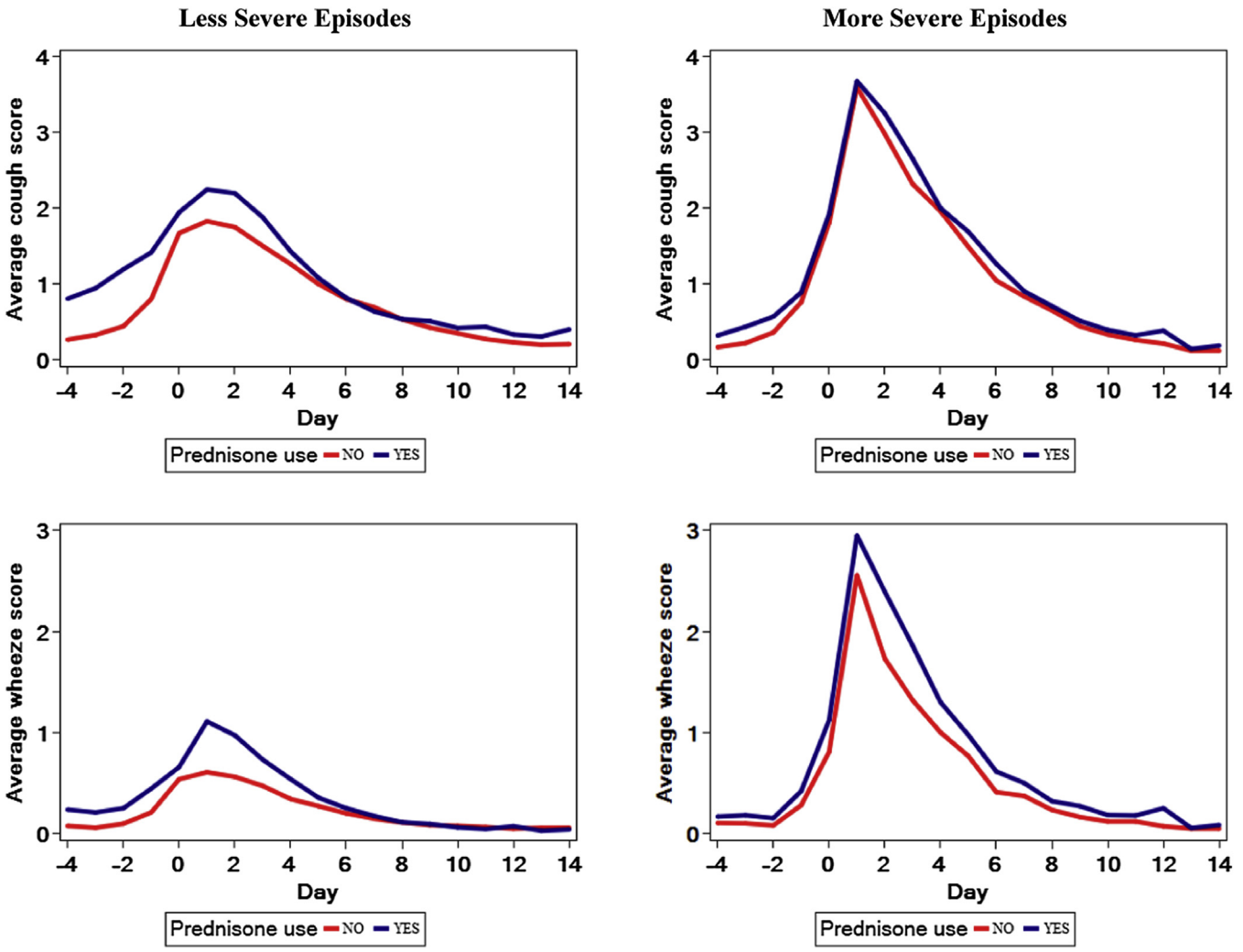

FIG E2. Comparisons of symptom scores in the MIST cohort between episodes that were or were not treated with OCSs (corresponding to the comparisons detailed in Table V, without adjustment to maximal propensity). Data are stratified based on episodes that met and did not meet severity criteria.

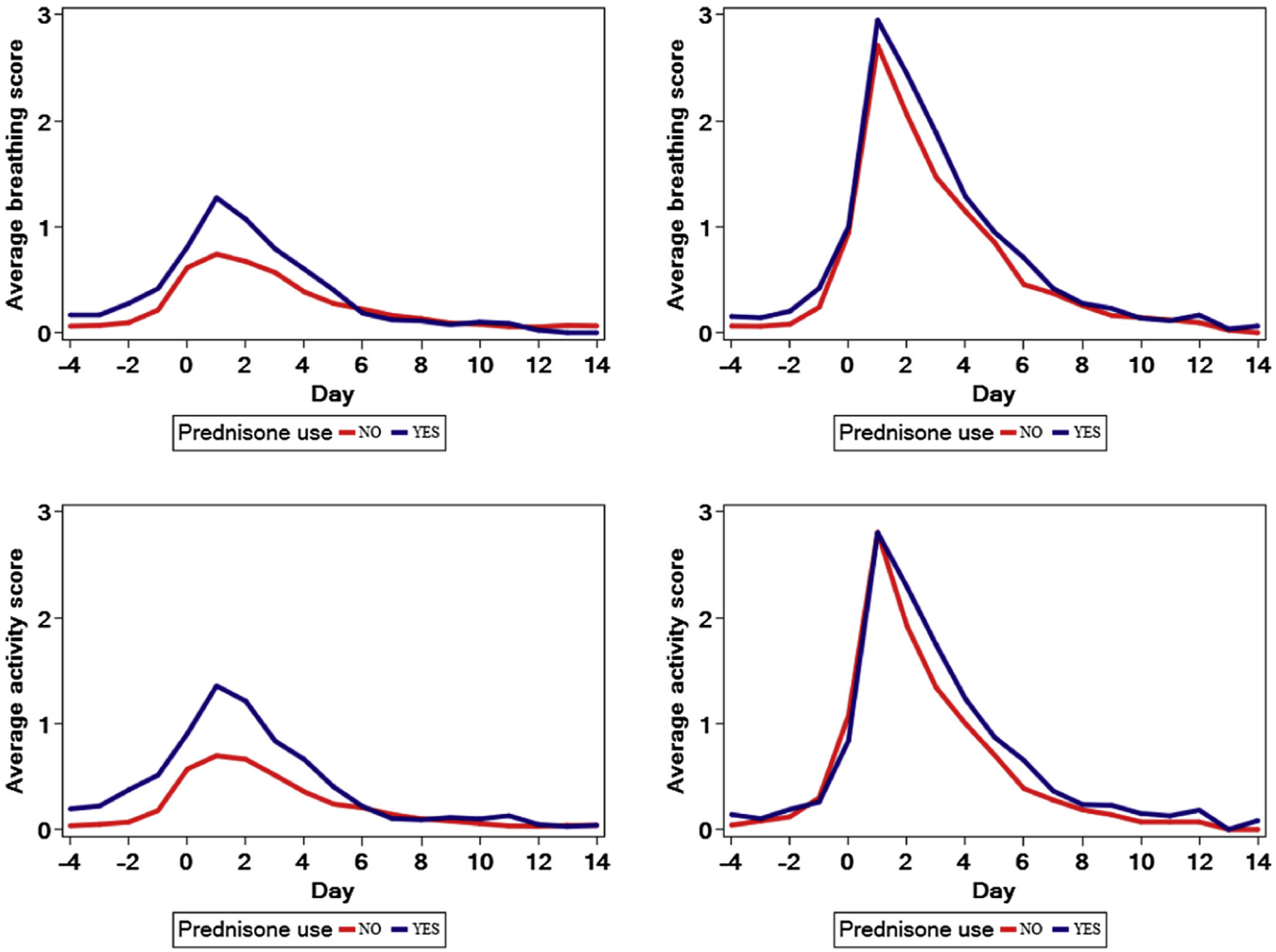

FIG E2. *(Continued)*

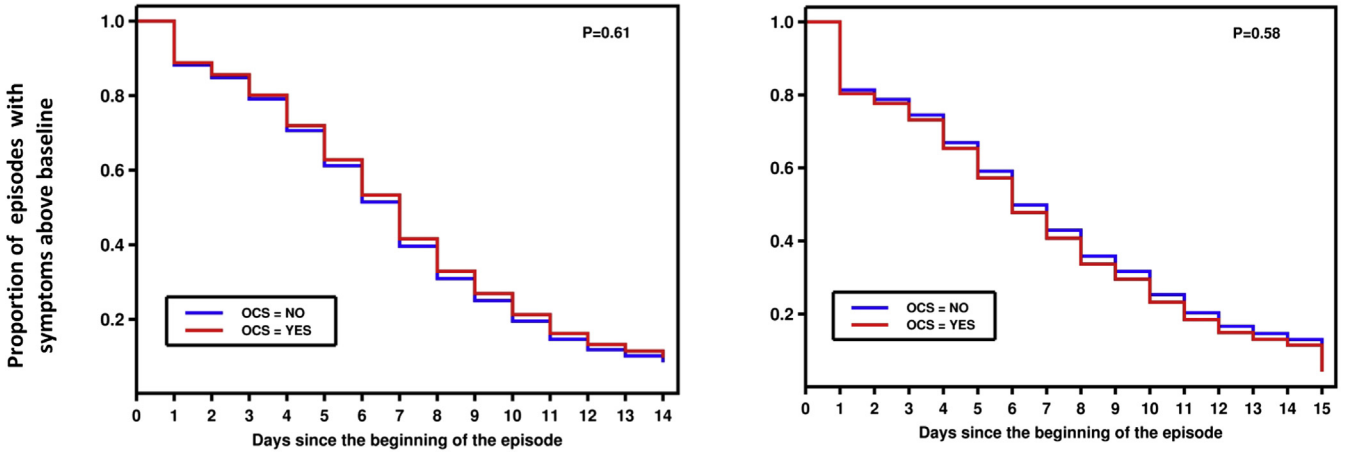

FIG E3. Survival curves describing the proportion of episodes in which return to baseline respiratory symptoms was achieved among episodes that were or were not treated with OCSs. The baseline symptom level was defined as the mean of daily symptoms between days 14 and 7 before the beginning of the episode (ie, days −7 to −14).

TABLE E1. Indications to start OCS treatment (AIMS and MIST cohorts)

OCSs were initiated based on 1 of the following criteria:

1. Symptoms do not improve after 3 albuterol treatments administered every 15 min.
2. Albuterol is needed for >6 nebulization treatments or >12 puffs/d for >24 h.
3. Moderate-to-severe cough or wheeze occurs for at least 5 of the preceding 7 d.
4. An unscheduled visit for acute asthma care requiring repeated doses of albuterol (physician's office, urgent care, and emergency department) is needed.
5. Hospitalization is needed for asthma.
6. Physician's discretion with a specific reason for initiation of OCSs was recorded.

TABLE E2. Association between an episode's severity as predicted by the propensity model and actual OCS treatment in the AIMS cohort

	Treated with OCSs		
	No	Yes	Total
Severity of the episode as determined by the propensity model*			
Less severe	604 (88%)	82 (12%)	686
More severe	42 (38%)	70 (63%)	112
	646	152	798

The more severe episodes, as determined by the propensity model, are more likely to be treated with OCSs compared with episodes with a propensity score of less than this cut point: $\kappa = 0.44$; 95% CI, 0.36-0.52. A κ value of 0.44 represents moderate agreement.

*An episode was defined as "more severe" if the episode had a propensity score of 0.2 or greater.

TABLE E3. Pre-enrollment disease activity and episode baseline severity among episodes (AIMS cohort) that were or were not treated with OCSs. Data presented for the episodes that were defined by the model as *the more severe episodes* (N = 112), before and after adjustment by the propensity model

Covariate	Not treated with OCSs (n = 42), mean (SE) or % of RTIs	Treated with OCSs (n = 70), mean (SE) or % of RTIs	Wald statistic or *z* statistic for differences in means before propensity adjustment (*P* value)	Wald statistic or *z* statistic for differences in adjusted means after propensity adjustment (*P* value)
Age (mo)	30 (0.84)	29 (0.84)	1.6 (.21)	0.8 (.41)
Positive API result (%)	36 (86%)	56 (80%)	0.6 (.44)	1.0 (.32)
Receive ≥1 course of OCS (%)	32 (76%)	55 (79%)	0.1 (.77)	0.5 (.49)
Drug arm (LTRA, ICS, albuterol [%])	45/33/21	51/27/21	0.5 (.76)	0.3 (.85)
Clinical center (%)	19/10/33/17/21	24/20/29/11/16	3.3 (.50)	4.9 (.30)
Ethnicity (Hispanic [%])	6 (14%)	12 (17%)	0.2 (.69)	0.4 (.52)
Race (O/AA/W [%])	2/12/86	1/17/81	0.7 (.72)	0.9 (.63)
Positive skin test response to aeroallergen (%)	22 (52%)	38 (54%)	0.1 (.84)	0.0 (.99)
Male sex (%)	23 (55%)	46 (66%)	1.3 (.25)	0.1 (.81)
Physician's office visits (past 12 mo)	4.4 (1.11)	5.1 (1.25)	0.4 (.69)	0.7 (.65)
ED visits (past 12 mo)	1.3 (0.66)	1.6 (0.67)	0.3 (.79)	0.3 (.79)
≥4 Wheezing exacerbations (past 12 mo)	38 (90%)	60 (86%)	0.5 (.46)	1.5 (.22)
Episode baseline symptoms scores:				
Total symptoms	9.7 (0.39)	10.2 (0.44)	1.0 (.34)	0.1 (.95)
Trouble breathing	2.0 (0.18)	2.4 (0.14)	1.8 (.08)	1.2 (.22)
Interference with activity	2.6 (0.13)	2.5 (0.14)	0.8 (.43)	1.5 (.13)
Wheezing	2.0 (0.18)	2.2 (0.14)	0.9 (.37)	0.3 (.77)
Cough	3.3 (0.11)	3.3 (0.12)	0.0 (.99)	0.8 (.43)
No. of albuterol treatments	4.4 (0.28)	5.2 (0.27)	1.9 (.06)	1.6 (.12)

Data are expressed as means (SEs) or percentages of RTIs, except as noted. Repeated-measures models were used to adjust for multiple events within subjects. Propensity score adjustment was performed based on the natural log transformation (to improve normality) of the maximal score in each episode.

AA, African American; *API*, Asthma Predictive Index; *ED*, emergency department; *LTRA*, leukotriene receptor antagonist; *O*, other; *W*, white.

TABLE E4. Pre-enrollment disease activity and episode baseline severity among episodes (AIMS cohort) that were or were not treated with OCSs. Data presented for the episodes that were defined by the model as *the less severe episodes* (N = 686), before and after adjustment by the propensity model

Covariate	Not treated with OCS (n=604) Mean (SE) or % of RTIs	Treated with OCS (n=82) Mean (SE) or % of RTIs	Wald statistic or *z* statistic for differences in means before propensity adjustment (*P* value)*	Wald statistic or *z* statistic for differences in adjusted means after propensity adjustment (*P* value)*
Age (mo)	30 (0.84)	30 (0.84)	1.7 (.19)	0.5 (.64)
Positive API result (%)	359 (60%)	53 (65%)	0.8 (.37)	1.1 (.31)
Receive at least one course of OCS (%)	354 (59%)	57 (70%)	3.6 (.06)	0.6 (.46)
Drug arm (LTRA, ICS, albuterol [%])	36/45/19	39/41/20	0.4 (.81)	0.1 (.93)
Clinical center (%)	22/28/14/21/15	18/15/34/21/12	23.2 (<.01)*	2.6 (.63)
Ethnicity (Hispanic [%])	104 (17%)	13 (16%)	0.1 (.76)	2.7 (.10)
Race (O/AA/W [%])	11/7/82	4/16/80	10.8 (.04)*	0.2 (.91)
Positive skin test to aeroallergen (%)	274 (46%)	49 (60%)	5.8 (.02)*	0.1 (.78)
Male sex (%)	386 (64%)	40 (49%)	7.0 (.01)*	1.3 (.26)
Physician's office visits (past 12 mo)	4.0 (0.24)	4.4 (0.58)	0.3 (.60)	0.1 (.97)
ED visits (past 12 mo)	1.0 (0.17)	0.6 (0.38)	0.4 (.53)	0.4 (.43)
≥4 Wheezing exacerbations (past 12 mo)	415 (69%)	57 (70%)	0.0 (.88)	0.4 (.54)
Episode baseline symptoms scores				
Total symptoms	4.7 (0.17)	6.0 (0.33)	4.0 (<.01)*	0.5 (.59)
Trouble breathing	0.9 (0.05)	1.2 (0.10)	3.0 (.01)*	0.1 (.91)
Interference with activity	1.0 (0.06)	1.5 (0.11)	4.6 (<.01)*	1.5 (.13)
Wheezing	0.9 (0.05)	1.1 (0.10)	1.5 (.13)	1.3 (.20)
Cough	2.0 (0.05)	2.4 (0.11)	3.5 (<.01)*	1.1 (.27)
No. of albuterol treatments	3.1 (0.09)	3.0 (0.20)	0.2 (.82)	1.9 (.06)

Data are expressed as means (SEs) or percentages of RTIs, except as noted. Before and after adjustment by using the propensity model. Repeated-measures models were used to adjust for multiple events within subjects. Propensity score adjustment was performed based on the natural log transformation (to improve normality) of the maximal score in each episode.

AA, African American; *API*, Asthma Predictive Index; *ED*, emergency department; *LTRA*, leukotriene receptor antagonist; *O*, other; *W*, white.

*$P < .05$.

TABLE E5. Pre-enrollment disease activity (MIST cohort) among episodes that were or were not treated with OCSs

Covariate	Episodes that were not treated with OCSs (n = 585)	Episodes that were treated with OCSs (n = 161)	Wald statistic before propensity adjustment (*P* value)*	Wald statistic after propensity adjustment (*P* value)*
Demographics and AIMS study covariates				
Age (mo)	34.5 (0.77)	34.5 (0.77)	0.0 (.95)	0.4 (.55)
Male sex (%)	75	74	0.4 (.51)	0.0 (.95)
Race (O/AA/W [%])	21/11/67	21/16/64	1.5 (.47)	0.1 (.96)
Ethnicity (Hispanic [%])	109 (19)	41 (25)	4.3 (.04)*	5.4 (.02)*
Drug arm (as-needed/maintenance [%])	55/45	50/50	1.1 (.30)	0.4 (.55)
Asthma history (past 12 mo before randomization)				
No. of physician's office visits for wheezing	3.25 (0.26)	4.63 (0.56)	2.2 (.03)*	0.2 (.64)
No. of ED visits for wheezing	1.37 (0.14)	2.00 (0.32)	1.9 (.07)	0.1 (.81)
No. of wheezing exacerbations	6.75 (0.48)	7.59 (1.09)	0.7 (.47)	0.5 (.49)
Receive ≥1 course of OCS (%)	79	83	0.3 (.57)	0.9 (.33)
Atopic characteristics (on randomization)				
Positive skin test response to aeroallergen (%)	55	57	0.1 (.72)	0.1 (.88)

Data are expressed as means (SEs), except as noted. Data are presented before and after adjustment by the propensity model. Repeated-measures models were used to adjust for multiple events within subjects. Propensity score adjustment was performed based on the natural log transformation (to improve normality) of the maximal score in each episode.
AA, African American; *ED*, emergency department; *O*, other; *W*, white.
*$P < .05$.

TABLE E6. Episode initial severity scores (MIST cohort)

Covariate	Episodes that were not treated with OCSs (n = 585)	Episodes that were treated with OCSs (n = 161)	Wald statistic before propensity adjustment (*P* value)*	Wald statistic after propensity adjustment (*P* value)*
Total symptom score	4.3 (0.17)	7.4 (0.35)	87.9 (<.001)*	1.0 (.32)
Trouble breathing score	0.9 (0.05)	1.7 (0.10)	67.3 (<.001)*	0.4 (.53)
Interfere with activity score	0.8 (0.05)	1.6 (0.10)	66.9 (<.001)*	1.6 (.2)
Cough score	1.9 (0.06)	2.5 (0.09)	45.5 (<.001)*	3.1 (.08)
Wheezing score	0.8 (0.05)	1.6 (0.11)	71.0 (<.001)*	1.1 (.29)
No. of albuterol treatments (past 24 h)	1.6 (0.11)	2.7 (0.19)	40.6 (<.001)*	0.8 (.37)

Data are presented before and after adjustment by the propensity model. Data are represented as means (SEs) of symptom scores from day 1 of the episode (start of illness kit) until OCSs were started (for those who received prednisone), and from day 1 through day 2 of the episode for those who did not receive OCSs (day 2 was the median for the day OCSs were started in the group who actually received OCSs). Symptom scores are on a scale of 0 to 5, other than the total symptom score, which is on a scale of 0 to 20. Repeated-measures models were used to adjust for multiple events within subjects. Propensity score adjustment was performed based on the natural log transformation (to improve normality) of the maximal score in each episode.

*$P < .05$.

TABLE E7. Association between the episode's severity as predicted by using the propensity model and actual OCS treatment in the MIST cohort

	Treated with OCSs		
	No	Yes	Total
Severity of the episode as determined by the model*			
Less severe	533 (87%)	80 (13%)	613
More severe	52 (39%)	81 (61%)	133
	585	161	746

The more severe episodes, as determined by using the propensity model, are more likely to be treated with OCSs compared with episodes with a propensity score of less than this cut point: $\kappa = 0.44$; 95% CI, 0.36-0.52. A κ value of 0.44 represents moderate agreement.

*An episode was defined as "more severe" if the episode had a propensity score of 0.2 or higher.

TABLE E8. Comparison of "time to return to baseline" of different symptom scores between episodes that were or were not treated with OCSs*

	AIMS cohort		MIST cohort	
Outcome (symptom score)	Hazard ratio (95% CI)	*P* value	Hazard ratio (95% CI)	*P* value
Total symptoms	1.1 (0.8-1.3)	.61	0.9 (0.8-1.2)	.58
Cough	1.1 (0.9-1.3)	.56	0.9 (0.7-1.1)	.47
Wheeze	1.0 (0.8-1.3)	.87	1.0 (0.8-1.2)	.73
Trouble breathing	1.2 (0.9-1.5)	.15	0.9 (0.7-1.1)	.43
Interference with activity	1.0 (0.8-1.2)	.63	0.9 (0.7-1.1)	.37

*All comparisons were adjusted for natural log of maximum propensity score, allowing for multiple episodes per subject through the inclusion of subject as a random effect in the proportional hazards regression model.

TABLE E9. Comparison of AUCs of total symptom scores between episodes that were or were not treated with OCSs in selected subgroups (AIMS cohort)

Subgroup	Episode severity level	No.	Episodes not treated with OCSs	Episodes treated with OCSs	*P* value
Peripheral blood eosinophilia (>4%)	Less severe episodes	265	4.2 (0.36)	4.9 (0.67)	.22
	More severe episodes	58	4.9 (0.47)	4.7 (0.49)	.63
Lack of peripheral blood eosinophilia (≤4%)	Less severe episodes	405	3.7 (0.17)	4.4 (0.34)	.03
	More severe episodes	48	4.5 (0.53)	5.4 (0.46)	.12
Serum IgE level >median (38 IU/mL)	Less severe episodes	302	4.1 (0.27)	4.5 (0.33)	.14
	More severe episodes	64	4.8 (0.40)	4.8 (0.40)	.98
Serum IgE level ≤median (38 IU/mL)	Less severe episodes	325	3.8 (0.18)	5.0 (0.54)	.04
	More severe episodes	42	5.0 (0.59)	6.0 (0.59)	.12
≥1 Positive skin test response to aeroallergens	Less severe episodes	323	4.3 (0.21)	4.9 (0.43)	.16
	More severe episodes	60	4.8 (0.37)	4.7 (0.44)	.67
Lack of positive skin test response to aeroallergens	Less severe episodes	360	3.7 (0.19)	4.7 (0.37)	<.01
	More severe episodes	52	4.9 (0.53)	5.5 (0.52)	.31
Family history of asthma	Less severe episodes	324	3.9 (0.21)	5.2 (0.45)	<.01
	More severe episodes	62	5.3 (0.45)	5.5 (0.45)	.63
Lack of family history of asthma	Less severe episodes	321	4.0 (0.25)	4.2 (0.35)	.43
	More severe episodes	46	4.6 (0.43)	4.6 (0.53)	.86
Personal history of eczema	Less severe episodes	74	4.7 (0.30)	7.3 (1.33)	.05
	More severe episodes	17	5.9 (0.96)	5.6 (0.92)	.56
Lack of personal history of eczema	Less severe episodes	612	3.8 (0.17)	4.3 (0.28)	.04
	More severe episodes	95	4.7 (0.35)	5.1 (0.38)	.35