ERRATUM

Erratum to: Predictors of Adherence to Inhaled Medications among Veterans with COPD

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We discovered that in 16.1 % of the cohort, we did not appropriately transform height from centimeters to inches. This error affected calculated values that included height including the estimation of FEV₁ % predicted. The authors regret this error and have revised the analyses using the corrected values. We had previously coded FEV₁ % predicted in decimal form and for the corrected analyses; we transformed this variable to percentages.

1. Page 1506 of the original text (page 1 of the e-publication) the last sentence of the Key Results section of the Abstract reads “In adjusted analysis, being adherent to a medication at baseline was the strongest predictor of future adherence to that same medication [(Odds ratio, 95 % confidence interval) ICS: 4.79 (3.22–7.12); LABA: 6.60 (3.92–11.11); IP: 14.13 (10.00–19.97)], but did not reliably predict adherence to other classes of medication.”

Revised text: “In adjusted analyses, being adherent to a medication at baseline was the strongest predictor of future adherence to that same medication [(Odds ratio, 95 % confidence interval) ICS: 4.78 (3.21–7.11); LABA: 6.56 (3.89–11.04); IP: 13.96 (9.88–19.72)], but did not reliably predict adherence to other classes of medications.”

2. Page 1508 of the original text (page 3 of the e-publication), Results section, first paragraph, lines 6 and 7 reads “By GOLD criteria, 60.7 % had severe to very severe COPD (the mean FEV₁ was 43.4±20.8 percent-predicted).”

Revised text: “By GOLD criteria, 51.3 % had severe to very severe COPD (the mean FEV₁ was 49.9±18.2 percent-predicted).”

3. Page 1508 of the original text (page 3 of the e-publication), Results section, paragraph 3, “Examining the relationship between adherence and markers of COPD severity, higher adherence to LABA and IP was associated with greater severity of airflow obstruction, as defined by absolute and percent-predicted FEV₁; whereas higher adherence to ICS was associated with severity of airflow obstruction only when it was defined in absolute FEV₁. Medication adherence was not associated with previous inpatient COPD exacerbations. Higher adherence to IP was associated with prior treatment for a COPD exacerbation in the outpatient setting and with the group of frequent exacerbators.”

Revised text: “Examining the relationship between adherence and markers of COPD severity, higher adherence to LABA, IP, and ICS was associated with greater severity of airflow obstruction, as defined by absolute and percent-predicted FEV₁. Medication adherence was not associated with previous inpatient COPD exacerbations. Higher adherence to IP was associated with prior treatment for a COPD exacerbation in the outpatient setting.”

4. Page 1509 of the original text (page 4 of the e-publication), first full paragraph, lines 8–15, read “For example, among those with excellent baseline ICS adherence, the odds for future adherence to ICS was 4.79 (95 % CI 3.22–7.12); among those with excellent baseline LABA adherence, the odds for future adherence to LABA was 6.60 (3.92–11.11); and among those with excellent baseline IP adherence, the odds for future adherence to IP was 14.13 (10.00–19.97).”

Revised text: “For example, among those with excellent baseline ICS adherence, the odds for future adherence to ICS was 4.78 (95 % CI 3.21–7.11); among those with excellent baseline LABA adherence, the odds for future adherence to LABA was 6.56 (3.89–11.04); and among those with excellent baseline IP adherence, the odds for future adherence to IP was 13.96 (9.88–19.72).”

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5. On page 1509 of the original text (page 4 of the e-publication), Results section, last paragraph: “Examining the covariates in each of the individual models demonstrated in Figure 1, we found that none of the additional variables were significantly associated with adherence to ICS. In models predicting adherence to LABA, older age was associated with better adherence to LABA, while missed appointments and a previous diagnosis of lung cancer were associated with poorer adherence to LABA. In models predicting adherence to IP, milder severity of airflow limitation and the total number of drug classes prescribed were both associated with decreased IP adherence. Compared to the strong association between past adherence to a medication class and future adherence to the same medication, the magnitude of effect for all other statistically significant associations was relatively small.”

Revised text: “Examining the covariates in each of the individual models that included the same medication as the outcome of interest (Figure 1), milder severity of airflow limitation was associated with lower adherence to all three medications. In the model where past ICS adherence predicted future ICS adherence, only unknown race was associated with greater adherence to ICS. In models predicting adherence to LABA, missed appointments and a previous diagnosis of lung cancer were associated with poorer adherence to LABA. In the model using past IP adherence to predict future IP adherence, total number of drug classes prescribed was associated with lower adherence. Finally, in the model incorporating past ICS adherence to predict future IP adherence, unknown race was associated with increased adherence while milder severity of airflow limitation was associated with decreased adherence. Compared to the strong association between past adherence to a medication class and future adherence to the same medication, the magnitude of effect for all other statistically significant associations was relatively small.”

6. On page 1510 of the published manuscript (page 5 of the e-publication) in the Discussion section, the

second sentence read: “We suspect that the higher adherence to IP among patients with more severe airflow obstruction, but not to LABA and ICS, may be related to the perceived immediate benefit of IP on symptom relief.”

Revised text: This statement is no longer correct.

Correction to Tables and Figures

1. We have revised affected variables in Table 1 to account for the correction in FEV₁ % predicted values.

Original

Table 1. Patient Characteristics During the Baseline Period

	Total N=2730	ICS N=1541	LABA N=966	IP N=2155
COPD Severity				
FEV1 in percent-predicted (m, sd)	43.4 (20.8)	43.6 (19.9)	41.2 (19.1)	41.5 (20.7)
Frequent exacerbators (%)	4.3	5.6	6.6	4.7

*m = mean; sd = standard deviation

Corrected

Table 1. Patient Characteristics During the Baseline Period

	Total N=2730	ICS N=1541	LABA N=966	IP N=2155
COPD Severity				
FEV1 in percent-predicted (m, sd)	49.9 (18.2)	48.2 (17.8)	45.5 (17.6)	49.0 (18.1)
Frequent exacerbators (%)	3.0	4.1	5.3	3.2

*m = mean; sd = standard deviation

2. We have revised effected variables in Table 2 to account for the correction in FEV₁ % predicted values.

Original

Table 2. Associations between Outcome Adherence and Baseline Patient Characteristics

	Outcome ICS Adherence		Outcome LABA Adherence		Outcome IP Adherence	
	Adherent	Nonadherent	Adherent	Nonadherent	Adherent	Nonadherent
	N=525	N=1016	N=487	N=479	N=863	N=1292
COPD Severity						
FEV1 in percent-predicted (m, sd)	42.3 (19.2)	44.2 (20.3)	39.2 (18.4)*	43.3 (19.8)*	37.7 (20.0)*	44.0 (20.8)*
Frequent exacerbators (%)	4.6	6.1	7.4	5.9	6.2*	3.8*

*indicates significant association with $p < 0.05$

Corrected**Table 2. Associations between Outcome Adherence and Baseline Patient Characteristics**

	Outcome ICS Adherence		Outcome LABA Adherence		Outcome IP Adherence	
	Adherent	Nonadherent	Adherent	Nonadherent	Adherent	Nonadherent
	N=525	N=1016	N=487	N=479	N=863	N=1292
COPD Severity						
FEV1 in percent-predicted (m, sd)	46.7 (17.5)*	49.0 (17.9)*	43.3 (17.1)*	47.8 (17.7)*	45.1 (17.7)*	51.7 (17.9)*
Frequent exacerbators (%)	3.8	4.2	5.8	4.8	3.9	2.7

*indicates significant association with $p < 0.05$

3. We have revised the OR in Table 3 to account for the correction in FEV₁ % predicted values.

Original**Table 3. Odds of Medication Adherence Based on Baseline Adherence to Different Classes of Medication**

Baseline Adherence (categorized by ReComp score)		Odds of ICS Adherence (95 % CI)	Odds of LABA Adherence (95 % CI)	Odds of IP Adherence (95 % CI)
Inhaled corticosteroid	Poor (0 to <0.20)	1.00	1.00	1.00
	Moderate (≥0.20 to <0.80)	0.85 (0.66–1.10)	0.98 (0.67–1.41)	0.88 (0.66–1.18)
	Good (≥ 0.80 to <1.0)	2.87 (1.96–4.20)	1.87 (1.09–3.23)	1.21 (0.77–1.90)
	Excellent (1.0)	4.79 (3.22–7.12)	3.30 (1.89–5.74)	1.88 (1.21–2.92)
Long-acting beta-agonist	Poor	1.00	1.00	1.00
	Moderate	0.88 (0.60–1.29)	1.08 (0.79–1.49)	0.83 (0.56–1.22)
	Good	1.84 (1.17–2.90)	3.61 (2.39–5.47)	1.06 (0.67–1.68)
	Excellent	1.71 (1.03–2.84)	6.60 (3.92–11.11)	1.43 (0.86–2.38)
Ipratropium bromide	Poor	1.00	1.00	1.00
	Moderate	0.85 (0.61–1.19)	1.49 (0.98–2.27)	1.38 (1.10–1.73)
	Good	2.30 (1.46–3.61)	2.24 (1.27–3.94)	2.52 (1.81–3.50)
	Excellent	1.41 (0.94–2.10)	1.82 (1.11–3.00)	14.13 (10.00–19.97)

*Reference group for each model is poor baseline adherence (ReComp score <0.20).

†All models were adjusted for age, gender, race, missed clinic visits, FEV₁, occurrence ≥1 outpatient COPD exacerbations, asthma, lung cancer, and number of medication classes

Corrected**Table 3. Odds of Medication Adherence Based on Baseline Adherence to Different Classes of Medication**

Baseline Adherence (categorized by ReComp score)		Odds of ICS Adherence (95 % CI)	Odds of LABA Adherence (95 % CI)	Odds of IP Adherence (95 % CI)
Inhaled corticosteroid	Poor (0 to <0.20)	1.00	1.00	1.00
	Moderate (≥0.20 to <0.80)	0.84 (0.65–1.09)	0.97 (0.66–1.40)	0.88 (0.66–1.18)
	Good (≥ 0.80 to <1.0)	2.84 (1.94–4.16)	1.85 (1.07–3.20)	1.21 (0.77–1.90)
	Excellent (1.0)	4.78 (3.21–7.11)	3.31 (1.90–5.78)	1.86 (1.20–2.88)
Long-acting beta-agonist	Poor	1.00	1.00	1.00
	Moderate	0.88 (0.60–1.28)	1.07 (0.78–1.48)	0.83 (0.57–1.23)
	Good	1.85 (1.18–2.91)	3.58 (2.37–5.42)	1.09 (0.69–1.71)
	Excellent	1.71 (1.03–2.83)	6.56 (3.89–11.04)	1.44 (0.87–2.39)
Ipratropium bromide	Poor	1.00	1.00	1.00
	Moderate	0.85 (0.61–1.19)	1.50 (0.98–2.28)	1.38 (1.10–1.73)
	Good	2.25 (1.43–3.54)	2.20 (1.25–3.88)	2.42 (1.74–3.37)
	Excellent	1.39 (0.93–2.06)	1.84 (1.12–3.02)	13.96 (9.88–19.72)

*Reference group for each model is poor baseline adherence (ReComp score <0.20).

†All models were adjusted for age, gender, race, missed clinic visits, FEV₁, occurrence ≥1 outpatient COPD exacerbations, asthma, lung cancer, and number of medication classes

4. We have revised the figure found on page 1510 (page 5 of the e-publication) of the original manuscript. Figure 1 is updated to reflect the corrected odds ratios and confidence intervals. The original and corrected versions are shown below.

Original Figure 1

Figure 1. Odds of medication adherence. Error bars reflect 95 % confidence interval. Reference group for each model is poor baseline adherence. All models were also adjusted for gender, race, occurrence of ≥ 1 outpatient COPD exacerbations, and asthma, none of which was a significant predictor in any model.

Corrected Figure 1
Figure Legend (revised)

Figure 1.Odds of medication adherence. Error bars reflect 95 % confidence interval. Reference group for each model is poor baseline adherence. All models were also adjusted for age, gender, occurrence of ≥ 1 outpatient COPD exacerbations and asthma, none of which was a significant predictor in any model.