Determinants of lung function progression measured by lung clearance index in children with cystic fibrosis.

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Table S1. Comparison of subjects Lost to Follow-up (LTFU) and those included in school-age follow-up.

	Healthy Controls (n=72)			CF (n=78)		
	TRACK (n=48)	**LTFU (n=24)**	**p-value**	**TRACK (n=64)**	**LTFU (n=14)**	**p-value**
Male, n (%)	21 (44%)	12 (50%)	0.62	32 (50%)	7 (50%)	0.76
White, n (%)	38 (79%)	17 (71%)	0.43	56 (87%)	13 (93%)	0.57
Age, mean (range)	4.0 (2.5, 5.9)	4.2 (3, 5.9)	0.30	**4.2 (2.6, 5.9)**	**4.9 (2.7, 5.9)**	**0.02**
Centiles, mean (range)						
Height-for-age	61.1 (8.2, 99.8)	61.3 (6.7, 98.7)	0.97	44.7 (2.1, 97.5)	41.9 (0.8, 89.2)	0.73
Weight-for-age	61.6 (3.8, 99.6)	64.4 (8.8, 99.8)	0.64	43.5 (2.0, 94.7)	41.1 (2.2, 80.7)	0.77
BMI-for-age	59.5 (1.3, 99.1)	63.7 (17.6, 99.9)	0.54	47.2 (1.0, 94.9)	48.7 (15.9, 91.0)	0.85
MBW						
LCI, mean (range), n=103	7.1 (6.1, 8.1)	7.2 (6.8, 7.7)	0.34	**8.6 (6.7, 13.6)**	**9.9 (6.4, 13.0)**	**0.04**
Spirometry						
$FEV_{0.75}$ % predicted, n=71	97.0 (69.1, 147.0)	96.8 (79.6, 119.5)	0.99	92.4 (73.6, 122.3)	81.6 (42.0, 100.6)	0.08
FEV_1 % predicted, n=89	101.2 (73.3, 129.9)	102.7 (79.3, 136.4)	0.76	93.5 (76.6, 119.3)	84.5 (42.5, 105.9)	0.13
FEF_{25-75} % predicted, n=54	103.0 (71.3, 139.3)	91.8 (66.8, 135.5)	0.19	**98.6 (49.6, 152.9)**	**65.0 (43.5, 79.8)**	**0.02**
$zFEV_t$, mean (range), n=94	0.1 (-2.4, 3.3)	0.1 (-1.5, 2.3)	0.96	-0.6 (-2.1, 1.8)	-1.4 (-4.3, 0.0)	0.07

Preschool vs. School age Interface

To ascertain any bias due to interface differences between the preschool and school age visits, twenty-nine subjects (14 HC and 15 CF) performed repeated measurements using both the preschool (mask + small dead space filter) and school age (mouthpiece + standard filter) interface at the same study visit for three consecutive visits. LCI was calculated at the gas sampling point for both interface set-ups. Within an individual subject the difference in LCI between preschool and school age interfaces from all visits pooled was 0.28 units higher for all preschool set interface (95% CI 0.07 – 0.50; 95% limits of agreement -0.81, 1.37; p=0.01). The difference was similar for all consecutive visits, and the observed differences were similar in health and CF which supported pooling of the data (**Table S2; Figure S1**). The analysis accounted for the repeated measurements in the same individual. The difference in LCI between interfaces was also not dependent on subject height or weight (**Figure S2**). Since LCI values were not interchangeable between interfaces, a 'interface' covariate was included in all analyses to interpret longitudinal measurements.

Table S2. Summary of LCI differences between preschool and school age interface (preschool – school age). There were 14 HC and 15 CF subjects; not all had successful measurements at all 3 visits.

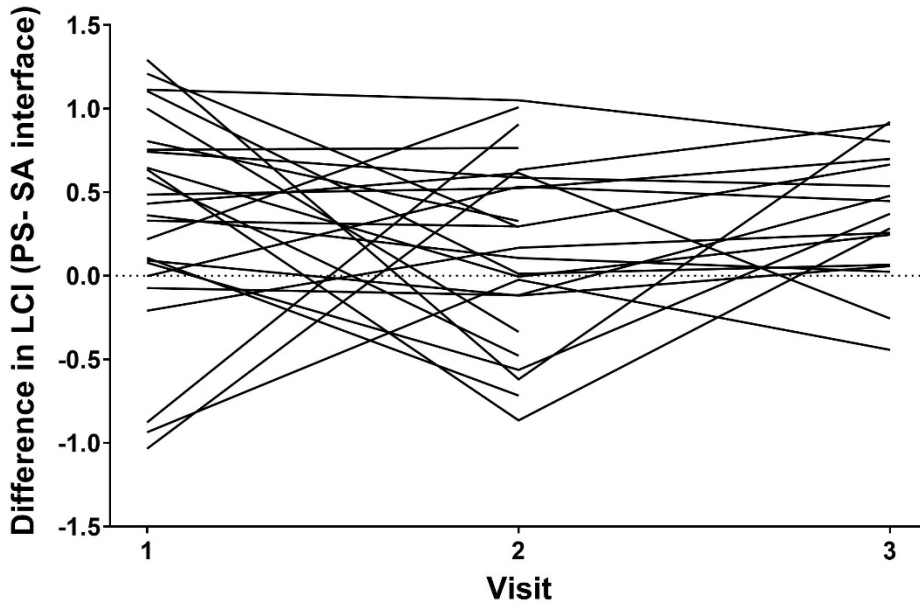|	Visit 1	Visit 2	Visit 3
HC	0.42 (0.15, 0.70)	0.33 (0.15, 0.52)	0.24 (0.02, 0.47)
CF	0.26 (-0.07, 0.60)	-0.03 (-0.39, 0.34)	0.57 (0.37, 0.77)

Figure S1. Differences in LCI between preschool and school age interface between 3 consecutive visits including both healthy controls and the CF group.
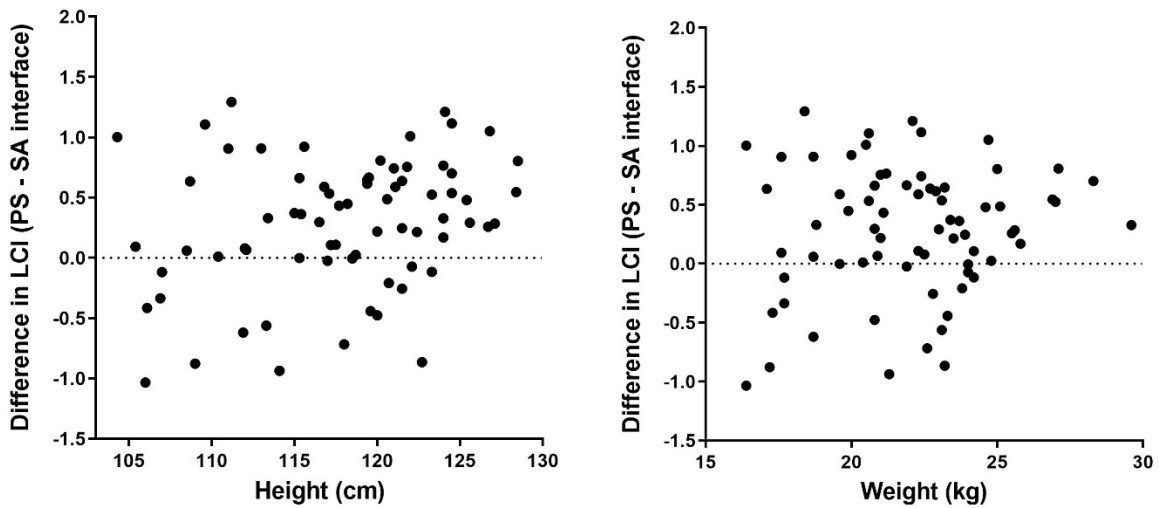

Figure S2. Relationship between difference in LCI between preschool and school age interface and height (left) and weight (right) including both healthy and CF subjects.
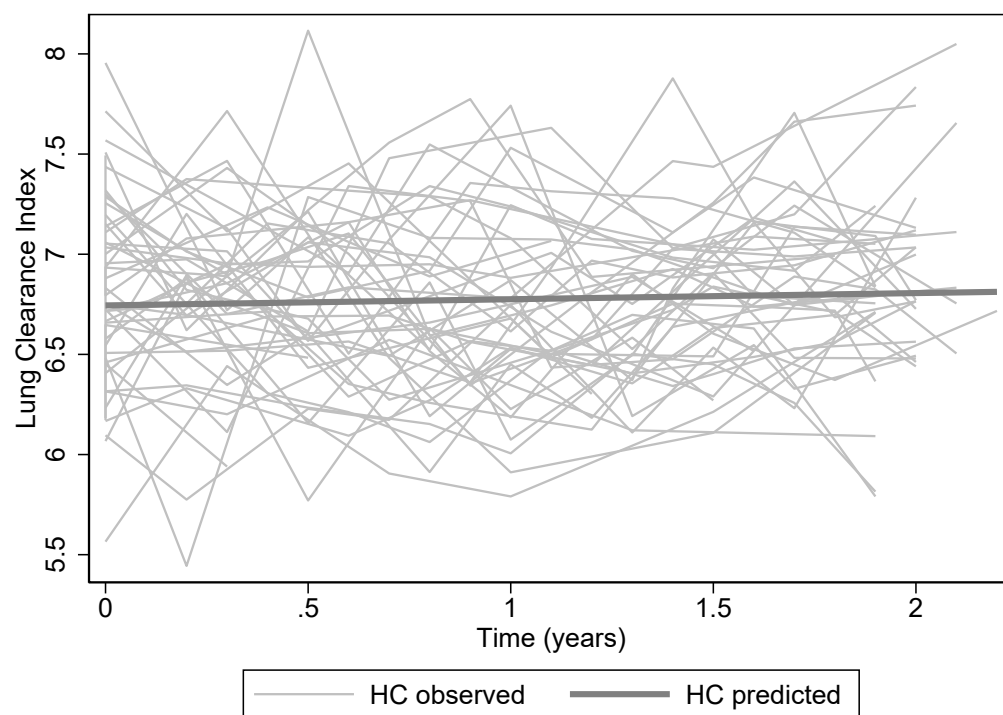
Figure S3. Tracking changes in LCI over the two-year school age period in the HC group. Average change over time for LCI was 0.02 (95% CI -0.05; 0.10) and was estimated from a linear mixed effects model.