

Table E1. CT Scanners used in the Study and Number of Participants Scanned.

Site	EXAM 1		EXAM 2		EXAM 3		EXAM 4	
	n	Scanner	n	Scanner	n	scanner	n	scanner
WFU	91	GE Light Speed QX/I	174	GE Light Speed Plus	370	GE Light Speed Pro16	151	GE Light Speed Pro16
	482	GE Light Speed Plus	12	GE Light Speed Pro16				
COL	710	Imatron C-150	246	Imatron C-150	238	Imatron C-150	185	Siemens Sensation 64
					173	Siemens Sensation 64		
JHU	461	Siemens S4+ Volume Zoom	108	Siemens S4+ Volume Zoom	163	Siemens S4+ Volume Zoom	134	Toshiba Aquilion 64
					27	Toshiba Aquilion 32		
					97	Toshiba Aquilion 64		
UMN	539	Siemens S4+ Volume Zoom	139	Siemens S4+ Volume Zoom	117	Siemens S4+ Volume Zoom	172	Siemens Sensation 16
					203	Siemens Sensation 16		
NWU	726	Imatron C-150	230	Imatron C-150	425	Imatron C-150	185	Imatron C-150
UCLA	831	Imatron C-150	323	Imatron C-150	456	Imatron C-150	165	Imatron C-150
Total	3840		1232		2269		992	

WFU= Wake Forest University, COL= Columbia University, JHU= Johns Hopkins University, UMN= University of Minnesota, NWU= Northwestern University, UCLA= University of California, Los Angeles.

Table E2. CT Scanners Change During Follow-up.

Change in Scanner Model during the Follow-Up Period				
	No Change	Changed Once	Changed Twice	Total
Scanned once	143	-	-	143
Scanned twice	1879	1022	-	2901
Scanned thrice	295	481	20	796
Participants (%)	2317 (60)	1503 (39)	20 (1)	3840 (100)

Table E3. Sensitivity Analysis for the Relationship of Mean Annual Rate of Change in Percent Emphysema to Baseline Plasma Sphingomyelin Level, Stratified by Gender, Race, and Smoking Status.

	Mean Annual Change in Percent Emphysema per 1 standard deviation increase in baseline SM	95% Confidence Interval	p-Value
Among Males	0.102	(-0.065, 0.268)	0.23
Among Females	0.124	(0.005, 0.244)	0.042
Among White	0.140	(-0.031, 0.310)	0.11
Among Black	0.076	(-0.118, 0.270)	0.44
Among Hispanic	0.164	(-0.041, 0.368)	0.12
Among Chinese	-0.019	(-0.270, 0.232)	0.88
Among Ever smoked	0.044	(-0.095, 0.183)	0.54
Among Never Smoked	0.199	(0.058, 0.341)	0.006

Models were adjusted for age, gender, race, height, weight, BMI, scanner model and protocol, educational attainment, number of cigarettes smoked per day among current smokers, cumulative pack-years, urinary levels of cotinine at baseline exam, family history of emphysema, having asthma before the age of 45, total serum cholesterol, HDL, LDL, triglycerides, intake of lipid lowering agents, systolic and diastolic and blood pressure, and study field center.

Table E4. Cross-sectional Association of Percent Emphysema and Plasma Sphingomyelin Level (SM).

	SM Q1	SM Q2	SM Q3	SM Q4	SM Q5	Mean Difference in Baseline Percent Emphysema per 1 standard deviation increase in SM	p-Value
Model 1	Ref.	-0.34	-0.84	0.23	0.05	-0.01 (-0.39, 0.37)	0.95
Model 2	Ref.	-0.40	-0.94	0.02	0.02	0.04 (-0.37, 0.45)	0.84

* Model 1 controlled for age, gender, race, height, weight, BMI, scanner model and protocol.

** Model 2 included model 1 variables and further controlled for educational attainment, smoking status, number of cigarettes smoked per day, cumulative pack-years, urinary levels of cotinine at baseline exam, family history of emphysema, diagnosis of asthma before age of 45, total serum cholesterol, LDL, HDL, serum triglycerides, intake of lipid lowering agents, systolic and diastolic blood pressure, and study field center.

Table E5. Cross-sectional Association of Spirometry with Plasma Sphingomyelin Level (SM).

	SM Q1	SM Q2	SM Q3	SM Q4	SM Q5	Mean Change of PFT parameter per 1 standard deviation increase in SM	p-Value
FEV₁, mL							
Mean±SD	2510±748	2439±715	2399±704	2325±744	2220±702	2380±730	
Model 1	Ref.	-20	14	29	52	25 (10, 39)	0.001
Model 2	Ref.	-22	11	21	52	24 (9, 40)	0.002
FVC, MI							
Mean±SD	3398±963	3254±942	3195±917	3120±977	2957±903	3188±952	
Model 1	Ref.	-59	-16	22	29	22 (4, 39)	0.01
Model 2	Ref.	-55	-12	23	33	24 (5, 43)	0.012
FEV₁/FVC ratio							
Mean±SD	74.2±9.5	75.4±8.9	75.3±8.1	74.7±8.4	75.2±8.1	75.0±8.6	
Model 1	Ref.	0.76	0.67	0.23	0.66	0.17 (-0.09, 0.42)	0.21
Model 2	Ref.	0.62	0.51	-0.08	0.58	0.11 (-0.16, 0.39)	0.42

* Model 1 controlled for age, gender, race, height, weight, BMI, diagnosis of asthma before age of 45

** Model 2 included model 1 variables and further controlled for educational attainment, smoking status, number of cigarettes smoked per day, cumulative pack-years, urinary levels of cotinine at baseline exam, family history of emphysema, total serum cholesterol, LDL, HDL, serum triglycerides, intake of lipid lowering agents, systolic blood pressure, and study field center.