

Supplemental Material Supplemental Figure 1

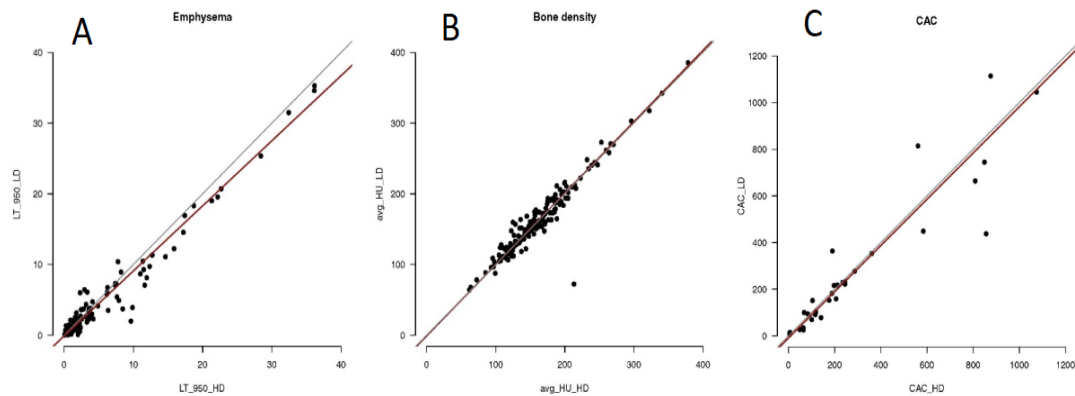


Figure Legend

Supplemental Figure 1. Comparison of high and low dose CT scans for quantitative emphysema measures, vertebral cancellous bone density, and Agatston score for coronary calcium.

Using paired high dose (200 mAs) and low dose (approximately 50 mAs with full iterative reconstruction) chest CT scans, measurements of emphysema (Low Attenuation Area @ -950 HU), thoracic vertebral body cancellous bone density (n=170) and coronary artery calcification (n=34) were performed. We estimated the relationship between high dose and low dose CT scans for each characteristic using Model II regression ¹.

A. Emphysema:

Low dose CT slightly underestimates the amount of emphysema (<-950 HU): the slope is 0.92 [95% CI 0.89, 0.95] and the intercept is -0.12 [-0.22, -0.01].

B. Bone Density:

Low dose CT and high dose CT estimates of bone density are similar: the slope is 1.01 [95% CI 0.97, 1.06] and the intercept is -1.0 [-8.4, +6.1].

C. Coronary artery calcification:

Low dose CT and high dose CT estimates of coronary artery calcium are similar: the slope is 0.99 [95% CI 0.86, 1.14] and the intercept is -9 [-52, +29]. The precision of these estimates is less because of the smaller number of observations.

Table S1. New Diagnosis of Coronary Artery Disease, Emphysema and Osteoporosis in LCS-Eligible Smokers with Selected Events by GOLD stage

	MD diagnosis CAD or statin use	CAC>100mg	New Diagnosis CAD	Non-fatal MI or Stroke in CAC negative*	Non-fatal MI or Stroke in CAC Positive*
GOLD 0 (n=1212)	403 (33%)	354 (29%)	181 (15%)	42/651 (6%)	34/341 (10%) p=0.048
PRISm (n=462)	200 (43%)	154 (33%)	60 (13%)	23/214 (11%)	16/134 (12%) p=0.73
GOLD 1-4 (n=2540)	1031 (41%)	1095 (43%)	530 (21%)	88/1090 (8%)	137/994 (14%) p<0.0001
Overall	1634/4214 (39 %)	1614/3794 (43%)	771/4192 (18%)	153/1960 (8%)	189/1478 (13%) p<0.0001
	Prior Diagnosis of COPD#	CT Emphysema > 5%	New Diagnosis of COPD	Respiratory events in known COPD subjects*	Respiratory events in “unknown COPD” subjects*
GOLD 0 (n=1212)	24 (2%)	136 (12%)	122/1045 (12%)	18/24 (75%)	137/370 (37%)
PRISm (n=462)	27 (6%)	28 (7%)	22/344 (6%)	19/23 (83%)	306/1084 (28%)
GOLD 1-4 (n=2540)	409 (16%)	1473 (61%)	1037/2111 (49%)	338/426 (79%)	1194/3362 (36%)
Overall	463/4238 (11%)	1444/3512 (41%)	1181/3500 (34%)	331/429 (77%)	1455/3375 (43%) p<0.0001
	MD diagnosis OP/ medication use	Osteoporosis by CT	New diagnosis of osteoporosis	Prevalent vertebral fracture^ (≥1) in normal bone density subjects	Prevalent vertebral fracture (≥1) in <u>low bone density</u> subjects
GOLD 0 (n=1203)	151 (13%)	495 (41%)	344 (29%)	60/201 (30%)	78/169 (46%) p=0.001
PRISm (n=419)	71 (17%)	187 (45%)	116 (28%)	12/70 (17%)	26/62 (42%) p=0.002
GOLD 1-4 (n=2496)	487 (20%)	1547 (62%)	1060 (42%)	73/250 (29%)	239/519 (46%) p<0.0001
Overall	709/4118 (17%)	2239/4141 (54%)	1520/4118 (37%)	145/525 (28%)	343/751 (46%) p<0.0001

*data from longitudinal follow-up survey 2009 – 2017,

respiratory events (sum of exacerbations and pneumonia) over mean of 5.8 (2.2) person-years of follow-up with a mean of 8.1 (4.2) surveys per subject

based on any positive response to questions of physician diagnosis of COPD, emphysema or chronic bronchitis on enrollment questionnaires.

^ vertebral fractures on baseline CT scan scored in a subset of CT scans n= 1276

Reference:

1. Sokal RR, Rohlf FJ. *Biometry : the principles and practice of statistics in biological research*. 3rd ed. New York: W.H. Freeman; 1995