

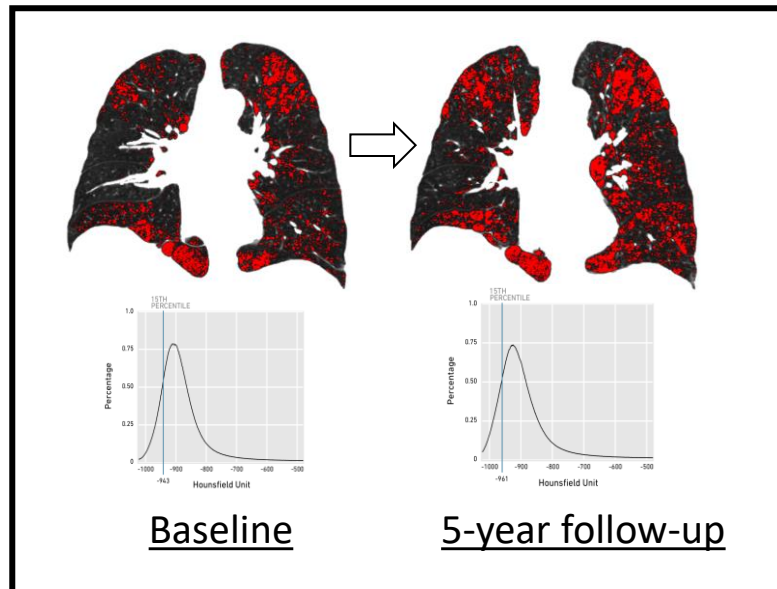
QIBA CT Lung Density Profile Claims



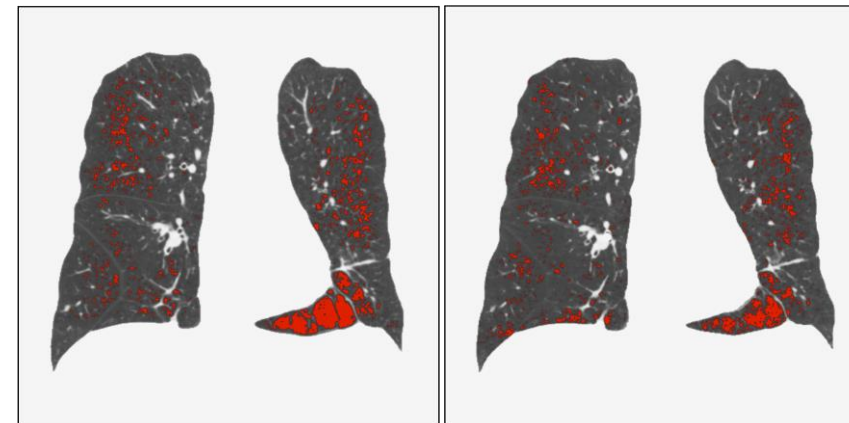
The QIBA Lung Density committee has recently finished the public comment period for the Lung Density profile and is working on revisions.

The profile establishes the following longitudinal claims:

- Claim 1: An increase in LAA-950 HU of at least 3.7% is required for detection of an increase in the extent of emphysema, with 95% confidence.
- Claim 2: **Without volume adjustment**, a decrease in Perc15 of at least 18 HU, is required for detection of an increase in the extent of emphysema, with 95% confidence.
- Claim 3: **With volume adjustment**, a decrease in Perc15 of at least 11 HU, is required for detection of an increase in the extent of emphysema, with 95% probability.



Iterative Reconstruction (IR)



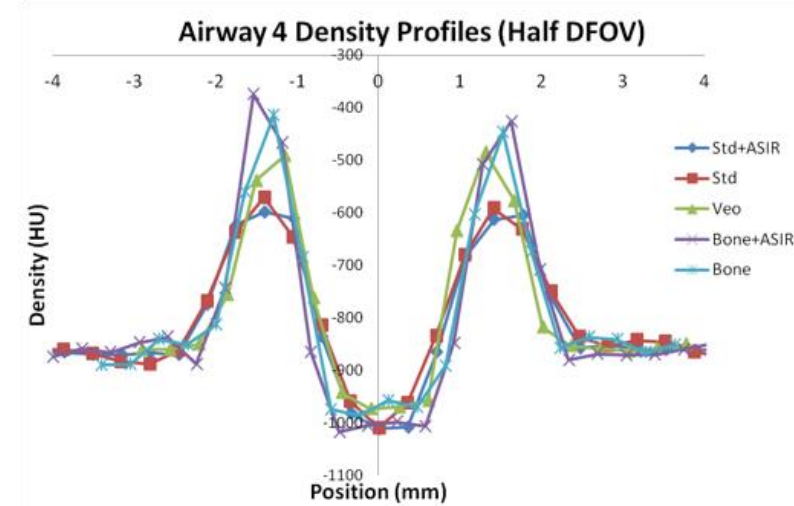
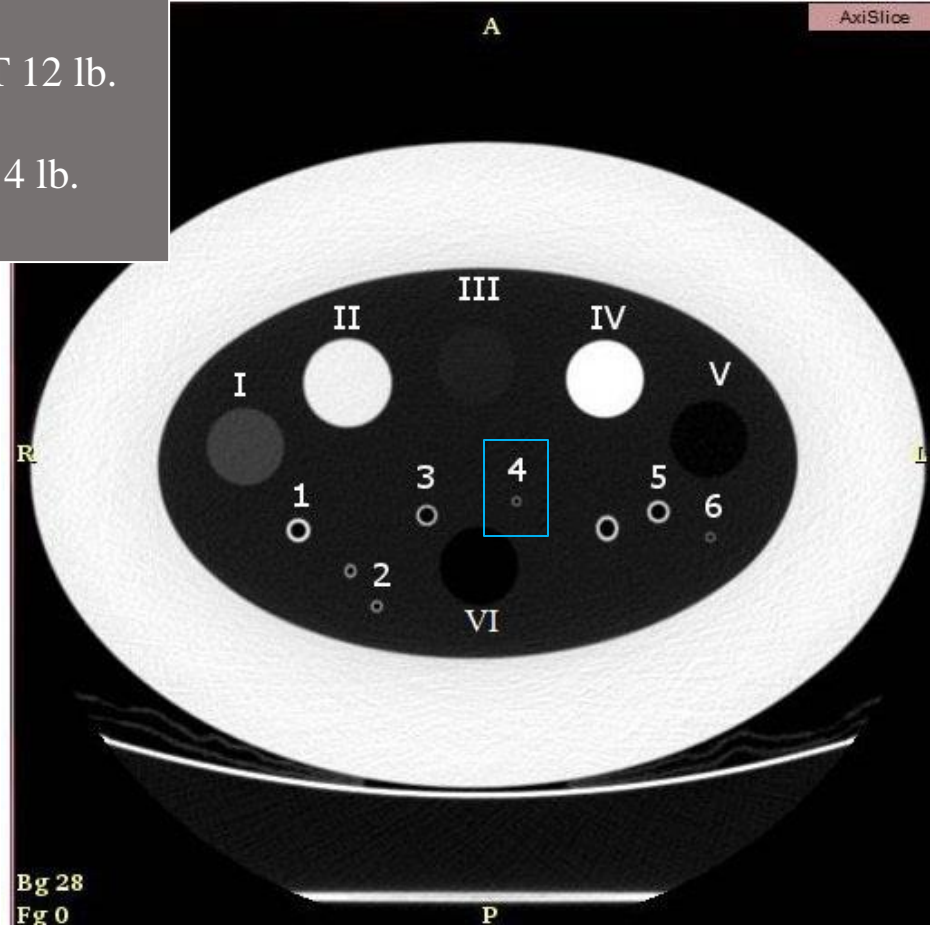
FD 7.4% <-950 HU
Perc15 = -940 HU

RD strong IR 7.0% <-950 HU
Perc15 = -940HU

COPDGene 2 Phantom



- I-Foam NIST 20 lb.
- II-Water
- III-Foam NIST 12 lb.
- IV-Acrylic
- V-Foam NIST 4 lb.
- VI-Air



Airway	Diameter	Thickness	WA %
1	6	1.5	55.56
2	3	0.6	48.98
3	6	0.9	40.83
4	2.5	0.4	42.61
5	6	1.2	48.98
6	2.5	0.4	42.61

Rodriguez, A. et al; Medical Physics Volume 41(11), November 2014, 111911.

Summary

- QIBA profile for lung density has advanced through the public comment phase
 - Claims estimate expected change for longitudinal trials to investigate emphysema progression
- Profile specifications include 0.5-0.7 mm isotropic voxel size and support airway measures
- Low dose protocols are feasible with use of iterative reconstruction
- Testing needed to confirm meets the performance requirements for CT volumetry but may well be sufficient to meet these claims