4DMedical™

XV Scanner™

Advanced Lung Scanning Technology

XV Scanner

- First dedicated lung function scanner
- Optimized for XV, improved sensitivity
- Better patient experience
- Rapid, automated scan (in 1–2 breath)
- Scan during normal breathing
- Very low dose (< 1 typical chest X-ray)

The XV Scanner offers technological and competitive advantages over existing imaging modalities. It is the first dedicated lung scanner to provide non-invasive functional insights into breathing lungs—providing images with unprecedented levels of clinical detail and actionable information.

Challenges in Measuring Regional Lung Function

- $31 USD billion global diagnostics market opportunity ripe for disruption[1]
- 99% of current lung diagnostics consist of PFT, X-ray, CT, and nuclear medicine[2]
- Current imaging trades-off accuracy, sensitivity, cost, and radiation exposure, and don't fully provide combined insights into the structure and function of the patient's lungs at a regional level

Dynamic and functional lung imaging has lagged other imaging modalities. New push to more personalized treatment includes matching therapy to a multidimensional assessment of specific patient attributes—the patient's phenotype.[3]

For lung disease patients this means measuring the heterogeneity of the lungs, the non-uniform distribution of inspired air within the lung.[4]

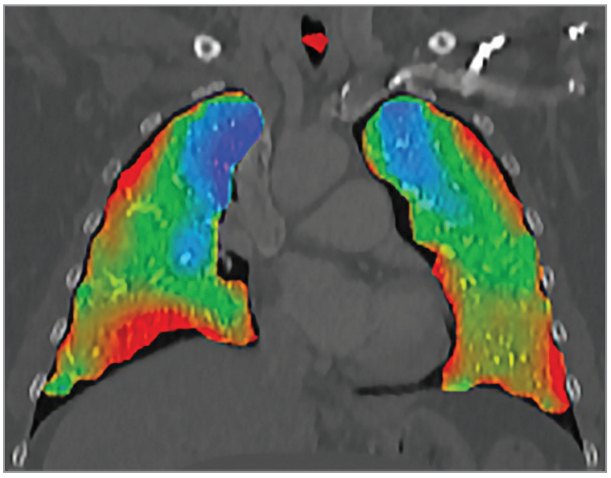
Heterogeneity in the lung plays a key role in determining airway hyper-responsiveness. By providing insights into disease mechanisms, functional measures of heterogeneity derived from imaging are associated with clinical markers of disease severity. Additionally, Heterogeneity is also an important predictor of treatment response.[5]

XV Technology

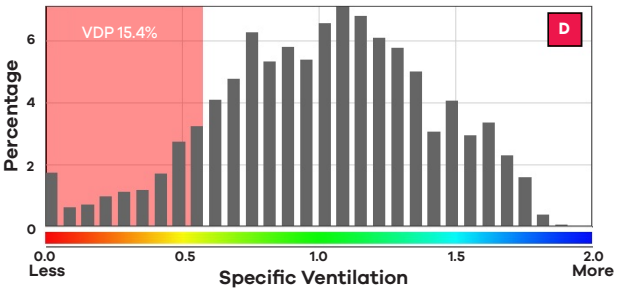
The XV Scanner is designed to be compatible with XV Lung Ventilation Analysis Software (XV LVAS), the first and only software-based image processing technology intended to provide reproducible quantification of ventilation for pulmonary tissue—to support diagnosis and follow-up examinations.

XV LVAS returns accurate four-dimensional quantitative measurements of regional ventilation deficiencies—by analyzing the motion of the lung tissue at 10,000+ locations within the lung during the breath cycle.

XV Technology operates with an improved sensitivity over non-invasive competing modalities—and without contrast agents.



The frequency distribution of regional specific ventilation measured across the entire lung at peak inspiration.



1. https://www.itnonline.com/content/diagnostic-imaging-markets-global-forecast
2. Frost & Sullivan
3. Bourbeau, J., Pinto, L.M. and Benedetti, A. (2014). Phenotyping of COPD: challenges and next steps. The Lancet Respiratory Medicine, [online] 2(3), pp.172–174. doi:10.1016/S2213-2600(14)70039-6.
4. Rutting, S., Chapman, D.G., Farah, C.S. and Thamrin, C. (2021). Lung heterogeneity as a predictor for disease severity and response to therapy. Current Opinion in Physiology, [online] 22, p.100446. doi:10.1016/j.cophys.2021.05.009.
5. Teague, W.G., Tustison, N.J. and Altes, T.A. (2014). Ventilation heterogeneity in asthma. Journal of Asthma, 51(7), pp.677–684. doi:10.3109/02770903.2014.914535.

XV LVAS
Ventilation
Report

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Not yet available for commercial sale in the US.