



XV LVAS

XV LUNG VENTILATION
ANALYSIS SOFTWARE

WELCOME TO THE FUTURE OF LUNG HEALTH



The Modality Gap

Current best practice diagnostic tools are antiquated. While each provides important insights, they often detect lung disease too late for effective treatment. Their limitations leave both clinicians and patients without a complete picture of lung health.

Spirometry - 1846

1-Dimensional Technology
Accurate but insensitive

Spirometry is the current benchmark in lung diagnostics. But it can only measure pulmonary capacity as an average over the entire lung and is dependent on patient effort. For a loss to be measurable, disease must be well advanced. As a result, diagnosis often comes too late.



X-ray - 1895

2-Dimensional Technology
Inexpensive but inconclusive

X-ray is widely used in clinics to determine changes in lung structure. It emits low radiation and is widely accessible. But when it comes to diagnosing respiratory illness, it delivers results that are clinically limited, non-functional and inconclusive.



CT - 1971

3-Dimensional Technology
Sensitive but expensive and emitting high radiation

The current gold standard for determining underlying lung structure, CT requires highly skilled radiologists to infer function from lung structure. It also delivers a radiation dose 70x that of chest X-ray.

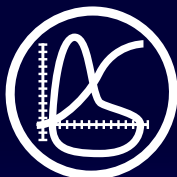


XV Technology™

4-Dimensional (3D plus time)

COMBINES THE BEST OF EXISTING MODALITIES

Functional insight
of spirometry
at a regional level



Comparable
radiation dose
to X-ray



High-detail
resolution
of a CT scan



TGA APPROVED
FDA-CLEARED

XV LVAS XV LUNG VENTILATION ANALYSIS SOFTWARE

The TGA approved and FDA-cleared, XV Lung Ventilation Analysis Software (XV LVAS) is the first and only modality that dynamically quantifies ventilation.

Powered by 4DMedical's XV Technology™, it returns pinpoint accurate, 4-dimensional, quantitative measurements of regional ventilation deficiencies, by imaging the motion of the lung tissue at 10,000's of locations within the lung during the breath cycle.

XV Technology operates with a higher sensitivity than any non-invasive competing modality without contrast agents.

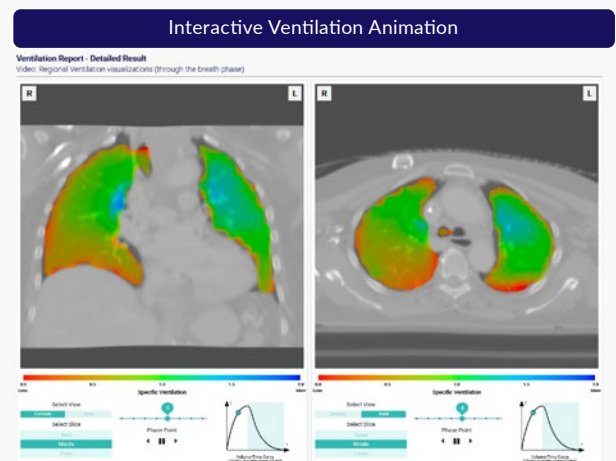
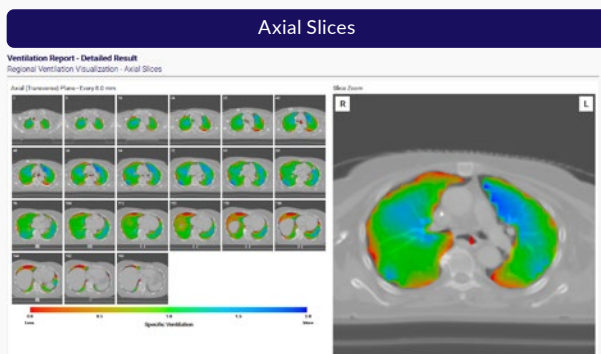
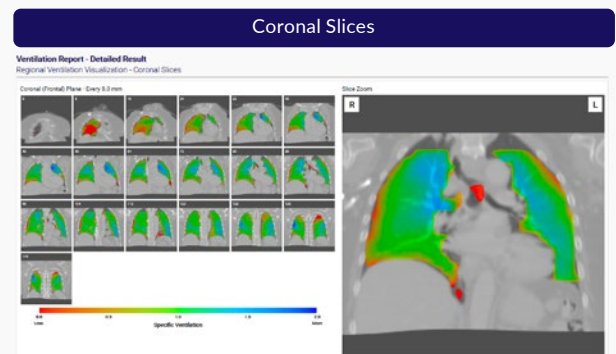
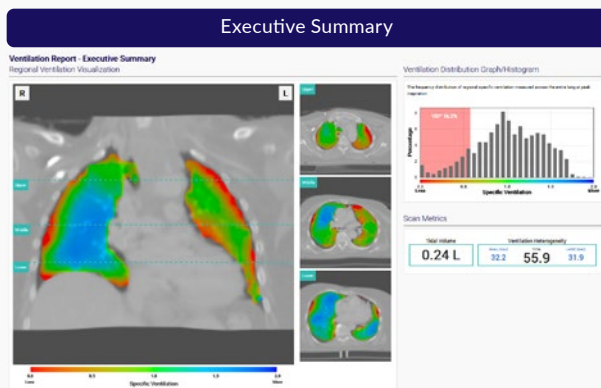
For the first time in medical history, the capacity to simply, safely and effectively view and measure regional lung function is here.



XV LVAS Ventilation Report

The XV LVAS Ventilation Report is the first in a series of reports to be made available for clinical application that provides a state-of-the-art way of understanding regional lung motion and airflow. It enables highly-detailed maps of both the patterns of lung motion and pulmonary function, with functional deficits detected through local (regional) differences in movement.

Product Screen Shots



Regional Ventilation Visualisation

The XV LVAS Ventilation Report delivers information not available via other modalities.

Measuring regional ventilation, the report enables physicians to detect areas of high and low ventilation with pinpoint accuracy. Ventilation is calculated for all parts of the lung in all phases of the breath.

A colour-coded visualisation is generated, showing both coronal and axial slices at peak inspiration, plus a 4-dimensional animation. Red depicts regions of low ventilation, green regions of average ventilation and blue regions of high ventilation.

The report also quantifies ventilation heterogeneity, which is a widely recognised indicator of lung health.¹

Earlier detection means earlier treatment.

If subtle functional losses can be detected early, before the lung structure is irreversibly affected by disease, treatment can be applied earlier - and this can lead to better outcomes for patients.

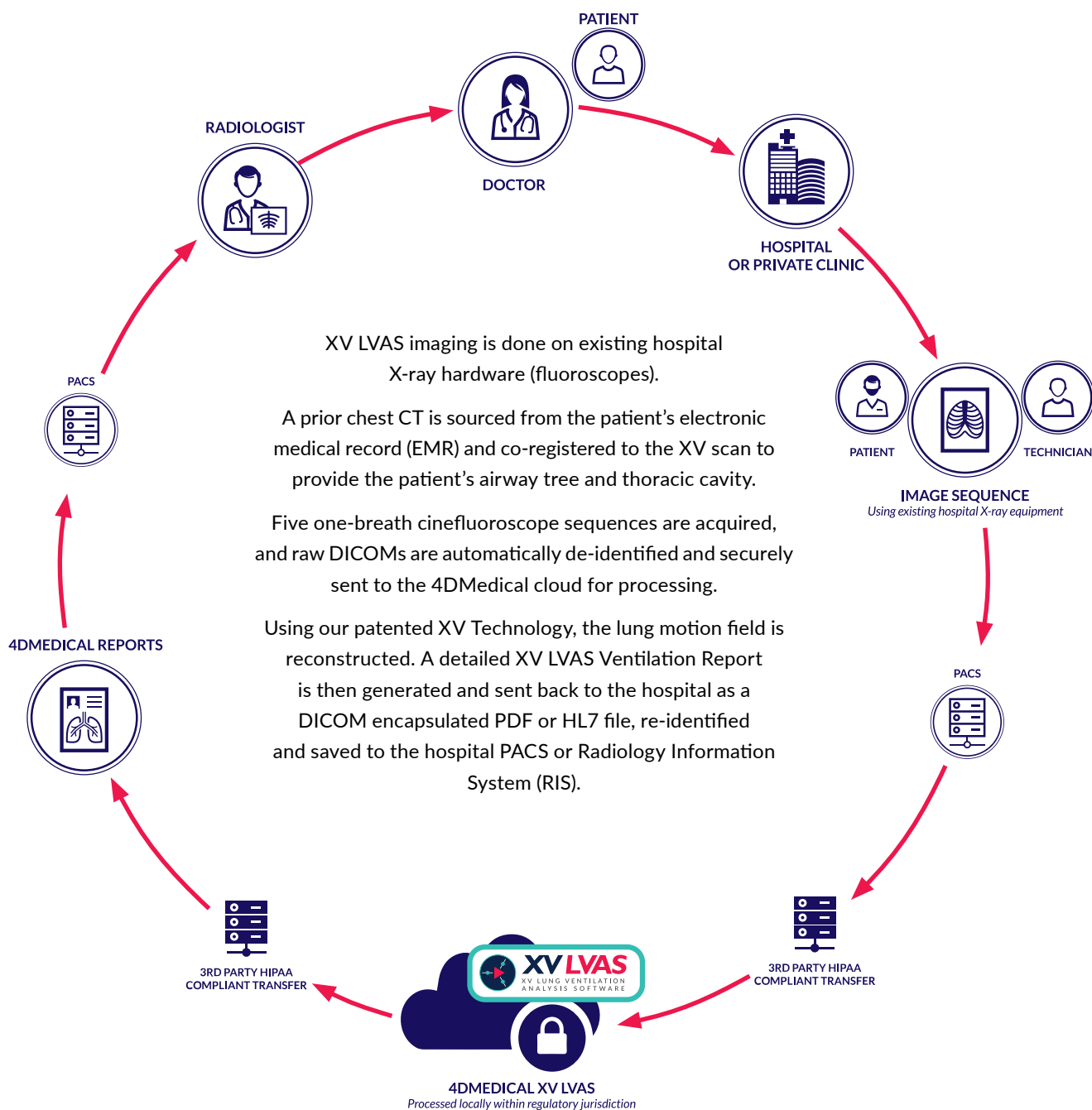
1. Downie SR, Salome CM, Verbanck S, et al. Ventilation heterogeneity is a major determinant of airway hyperresponsiveness in asthma, independent of airway inflammation Thorax 2007; 62: 684-689.



SaaS Delivery Model

Obtaining a XV LVAS Ventilation Report is easy.

A Software-as-a-Service (SaaS) delivery model means that no equipment needs to be purchased or installed. Once the XV LVAS Ventilation Report is complete, it is securely saved back onto the hospital's Picture Archiving and Communication System (PACS).





Potential Clinical Applications

Now with TGA approval and FDA clearance, the XV LVAS is indicated for a wide range of adult patients with:

- Obstructive or restrictive airway diseases (affecting small or large airways)
- Lung infections, including COVID-19

It is not currently cleared for patients under 18 years of age or for mobile fluoroscopy.

Patient and treatment monitoring

Low radiation makes XV LVAS an ideal solution for monitoring disease progression and therapeutic effectiveness in indications such as COPD and CF. It is also well suited for monitoring the long-term effects of COVID-19.

Diagnostic support

Earlier diagnosis and treatment can be assisted by more sensitive and accurate assessments of regional lung ventilation.

Surgical planning

A more intricate and sensitive analysis of a patient's lung health will allow the optimisation of surgical options.

Clinical trial support

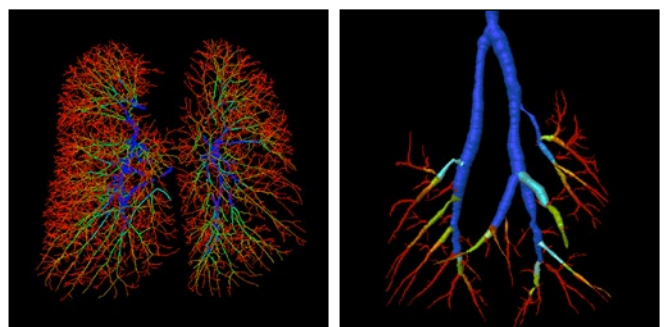
XV LVAS provides more sensitivity, repeatable measures and novel endpoints for new clinical trials.

Intensive care

By providing more accurate parameters for ventilator utilisation, ventilator use could be shortened, thereby reducing the risk of Ventilator Induced Lung Injury.

Future Product Development

The next generation of XV Technology reports are currently in development. These include Airway Flow and Expiratory quantification additions to the XV LVAS report and new Contrast-Free Pulmonary Angiography (CFPA) and VQ reports.



To find out more about our products, including our TGA approved and FDA-cleared XV Lung Imaging Technology, get in touch with your local 4DMedical team today.

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