# DOC-4554
# CT LVAS™ Imaging Protocol

For the chest CT scans, the radiologic technologist shall acquire a paired inspiration-expiration chest CT of the patient.

## 1. Imaging Protocol

- A standard non-contrast CT Chest protocol is recommended
- For the CT Scan, acquire a paired inspiration-expiration Chest CT of the patient
- Use the same resolution settings for both, the inspiration and expiration CT
- CT Scans acquired at deep inspiration and at deep expiration respectively

## 2. Patient Setup and Configuration

- The paired inspiration-expiration breathing phases shall be captured in a single study.
- Scan the patient in a supine position for both imaging breathing phases, aligning longitudinal axis of body with longitudinal axis of the CT scanning bed.
- Use imaging and reconstruction parameters consistent with a standard non-contrast CT Chest protocol (refer to Table 1)
- Field of View (FOV):
    - Ensure patient's arms are out of the FOV, for example, by placing them above the head
    - Ensure coverage is cranial-caudal lung apices through to lung bases
    - FOV shall include the entire lungs (e.g., 1cm beyond the edge of the patient)
- It is recommended to do a verbal breath hold command for both inspiration and expiration series.

## 3. CT LVAS Input Imaging Requirements

To produce a CT LVAS Report, the inspiration and expiration CT images must meet the accepted requirements listed in Table 1. If the input images do not meet the criteria below, the images will be rejected, and no analysis will be undertaken.

*Table 1: CT Requirements*

| | CT Requirements | |
|---|---|---|
| | Accepted | Rejected |
| Pixel Spacing | ≤ 1.0mm | > 1.0mm |
| Slice Thickness | ≤ 2.5mm | > 2.5mm |
| Slice Interval | ≤ 2.5mm | > 2.5mm |
| Respiratory Phase | Inspiration/Expiration | Inspiration or Expiration Only |
| Study | Single Study | > 1 Study |
| Filetype | Uncompressed<br>Lossless Compression | Compressed |
| Patient Position | Supine/Supine | If the input data is not of adequate quality, the output CT LVAS Report results will reflect the input data quality. |
| Contrast | None | |
| Artifact | None | |
| Motion | None | |
| FOV | Unobstructed view of entire lungs | |

### 3.1 Lung Volume Difference

**CAUTION:** The total lung volume difference between the inspiratory and expiratory CT images must be more than 0.5 liters (or more than 10% of the expiration CT volume). If the measured volume is less than 0.5 liters or 10% of the expiration CT volume, then no Report will be generated.

NOTICE: If the expiratory to inspiratory volume change is less than 0.8 liters and 20% of expiratory volume, the low values may be related to the image acquisition process and may not be representative of the patient's actual lung function.

If the notice is present on the Report and is not believed to be due to an error in the image acquisition, please contact 4DMedical using the information in the Instructions for Use, Section 10.