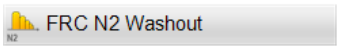
VYNTUS™ QUICK GUIDE

JAEGER

Nitrogen Washout (FRC N2 Washout) Workflow Quick Guide

Vyntus™ ONE, Vyntus™ ONE-PFT

***Note: FRC N2 Washout 'Program Settings' must be configured properly; see page 2.**

1. Select the measurement program "**FRC N2 Washout**" → 

(Either from the Home Page or a Measurement program)

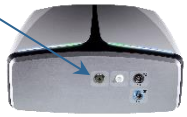
Preparation: Verbally explain measurement to patient and/or give demonstration

2. Click <**F1**> "**Start**" to start the measurement → 

(Patient should not be connected initially; wait for sensor zeroing) 

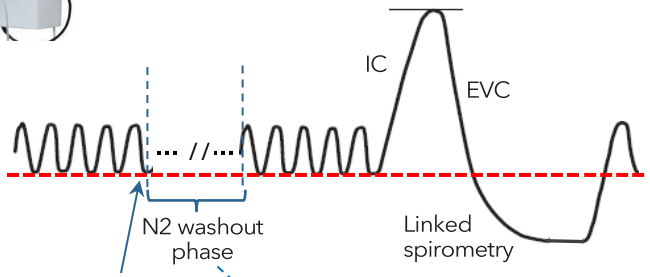
3. Connect the patient to the breathing circuit using a MicroGard™ filter and nose-clip
(Verify the sample line is connected between the USS MicroGard™ Adapter and the analyzer unit for gas sampling)



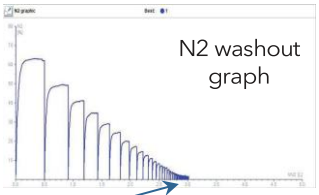




4. Have patient relax and breathe normally until **steady tidal breathing** is established, and a **red dashed line** appears
(red dashed line indicates FRC stability)



5. After stable FRC, the N2 washout phase should begin after several breaths (or click <F1> "Continue" to manually start) 



   a) Have patient **continue with relaxed breathing** during N2 washout
      - Patient inspires oxygen with each breath during N2 washout
      - Consistent tidal volumes of approximately 1 liter
      - Routinely remind the patient to keep tight seal with mouth to avoid leak

   b) Once N2 washout is reached (**N2 < 1.5%** for 3 or more breaths), SentrySuite™ automatically switches to the linked slow spirometry phase

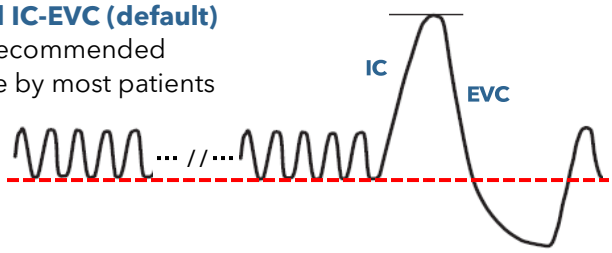
6. Return to normal breathing until **red dashed line** appears, then perform an **IC-EVC maneuver** (or ERV-IVC pending Program Settings*) – see page 2 for alternate N2 Workflows Options*

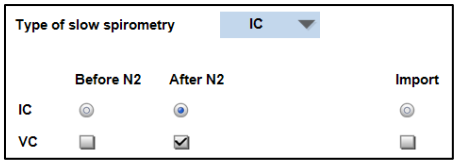
7. Click <**F3**> "**Stop**" to end the measurement → 

8. To assess **repeatability** for FRC N2 Washout, repeat steps 2 – 7 (minimum two FRC_{N2} trials**)

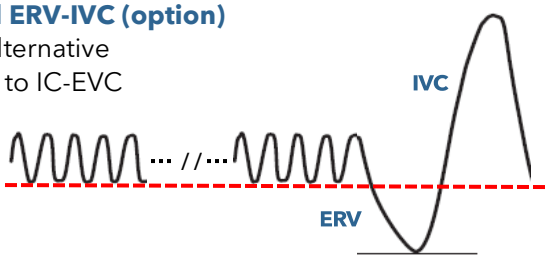
*FRC N2 Workflow Options and Program Settings

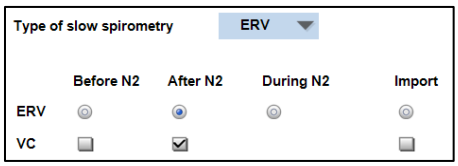
- **FRC with linked IC-EVC (default)**
  - ATS/ERS recommended
  - Achievable by most patients



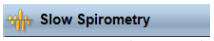


- **FRC with linked ERV-IVC (option)**
  - ATS/ERS alternative
  - Equivalent to IC-EVC

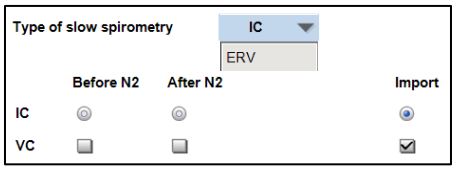




- **FRC with unlinked spirometry (option)**
  - ATS/ERS alternative; not preferred
  - Must *first* perform Slow Spirometry

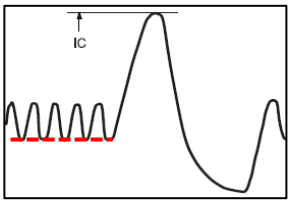


(Note: For this workflow, the 'IC-EVC' or 'ERV-IVC' selections must be set the same in the Program Settings of Spirometry and FRC N2 Washout programs)



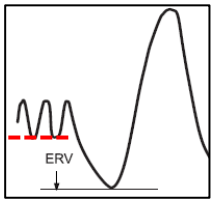
Step 1 – 'Slow Spirometry' program

IC-EVC

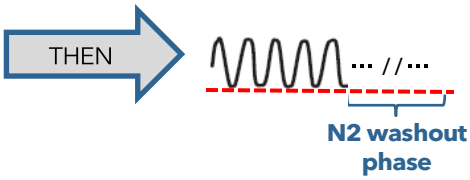


OR

ERV-IVC



Step 2 – 'FRC N2 Washout' program



NOTE about importing (or unlinked) VC from 2023 ATS/ERS statement on measuring lung volumes:

"Linked [slow] spirometry is optimal. However, some patients may have difficulty with linked spirometry after many minutes on the mouthpiece during measurement of FRC by [N2 Washout]. In these cases, unlinked spirometry is an alternative after re-establishing a resting FRC with tidal breathing. Results that incorporate unlinked maneuvers should be reported with caution (useable rather than acceptable)". – To use 'unlinked' VC data, enable 'Import – VC' in Program Settings (see above).

**Repeatability & Reporting

- Minimum of two acceptable FRC_{N2} maneuvers within 10% of each other (i.e., difference between the highest and lowest value divided by the mean is less than or equal to 0.10) and two acceptable slow spirometry maneuvers
- If only one acceptable or usable FRC_{N2} collected, report with a note of caution that repeatability could not be assessed

Bhakta NR, McGowan A, Ramsey KA, et al. European Respiratory Society/American Thoracic Society technical statement: standardisation of the measurement of lung volumes, 2023 update. Eur Respir J 2023; 62: 2201519 [DOI: 10.1183/13993003.01519-2022].

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