

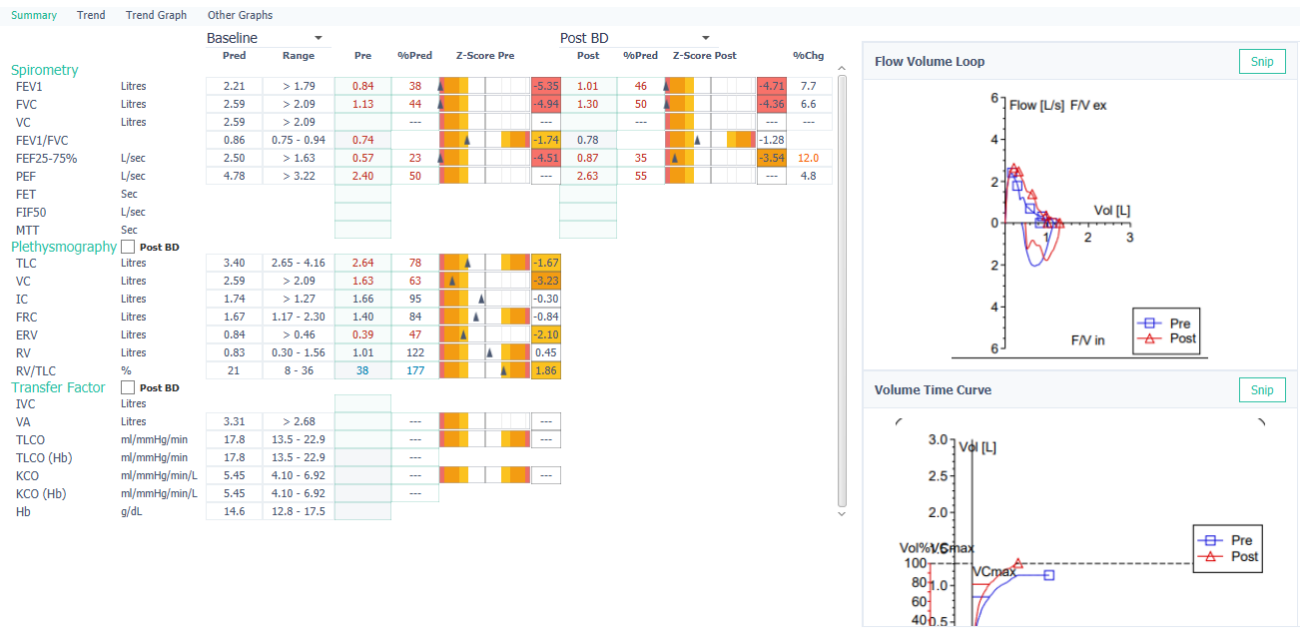
ANZSRS July 2024 Case of the Month WCH

10 year old male oncology patient with a history of treatment for TLL was referred for lung function. He had a recent history of wet cough and worsening SOB. Recent examination showed an SpO2 94% in room air.

NB: Due to the complexity of the patient on an oncology background, only the respiratory aspects are covered.

Respiratory Investigations

Baseline lung function testing: 11/4/24 Stated indications: TLL with history wet cough + worsening SOB. Recent examination sats 94% RA.



Clinical comment:

Spirometry: Mixed severe obstructive and restrictive ventilatory defect. Lung volumes: Mild restrictive ventilatory defect with mild gas trapping supporting the mixed restrictive/ obstructive picture. DLCO: VC <1.5L, unable to obtain an acceptable result

Exercise oximetry test (performed on a treadmill with harness): 11/04/2024

Stated indications: TLL with history wet cough + worsening SOB. Recent examination sats 94% RA.

WORKLOAD:-

TIME (MINUTES)	SPEED (km/h)	ELEVATION
0 – 2.00	2	10 ⁰
2.00 – 4.00	3	(NO CHANGE IN ELEVATION)
4.00 – 6.00	4	same
6.00 – 8.00	5	same
8.00 – 10.00	6	same

RESULTS:-

	TIME (minutes/seconds)	SpO ₂	HEART RATE (bpm)
BASELINE	0	94-95	133
	1.00	92	154
	2.00	92	165
	3.00	92	165
	4.00	93	171
	5.00	95	182
	6.00	95	187
Recovery		98	164

Clinical comment: Borderline baseline oxygen saturations with a slight drop in saturations during exercise with an increase in heart rate.

Progress Note – Respiratory

Hypoxia with mixed obstruction/restriction with background chronic wet cough, immunosuppression.

Differential diagnosis include:

- Interstitial lung disease (multifactorial)
- Bronchiolitis obliterans
- Protracted bacterial bronchitis (PPB) in children

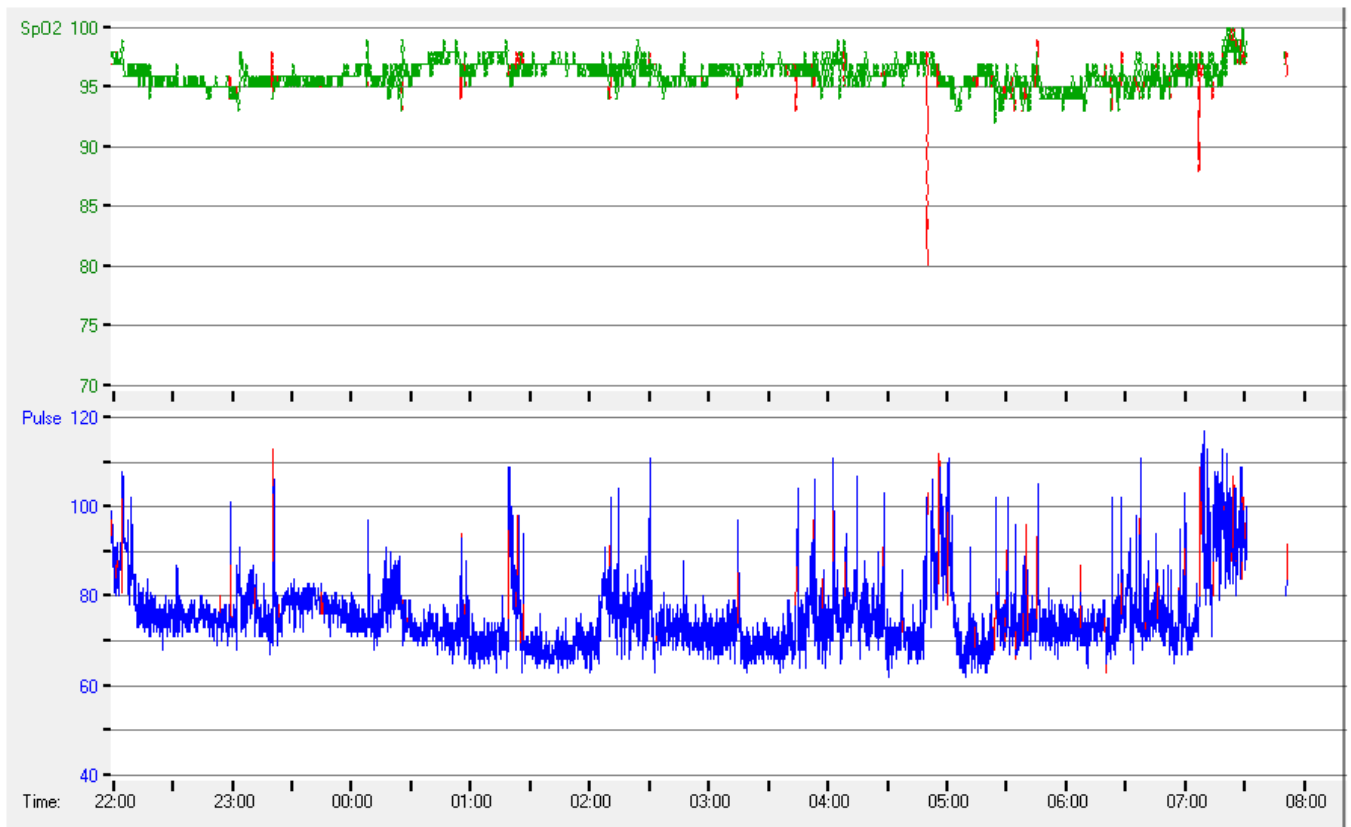
Further investigations:

- HRCT chest and bronchoscopy

Results:

- Bronchoscopy: widespread thick white secretions, sent for culture
- CT: showed bronchiectasis

Overnight ward oximetry 22/04/2024:

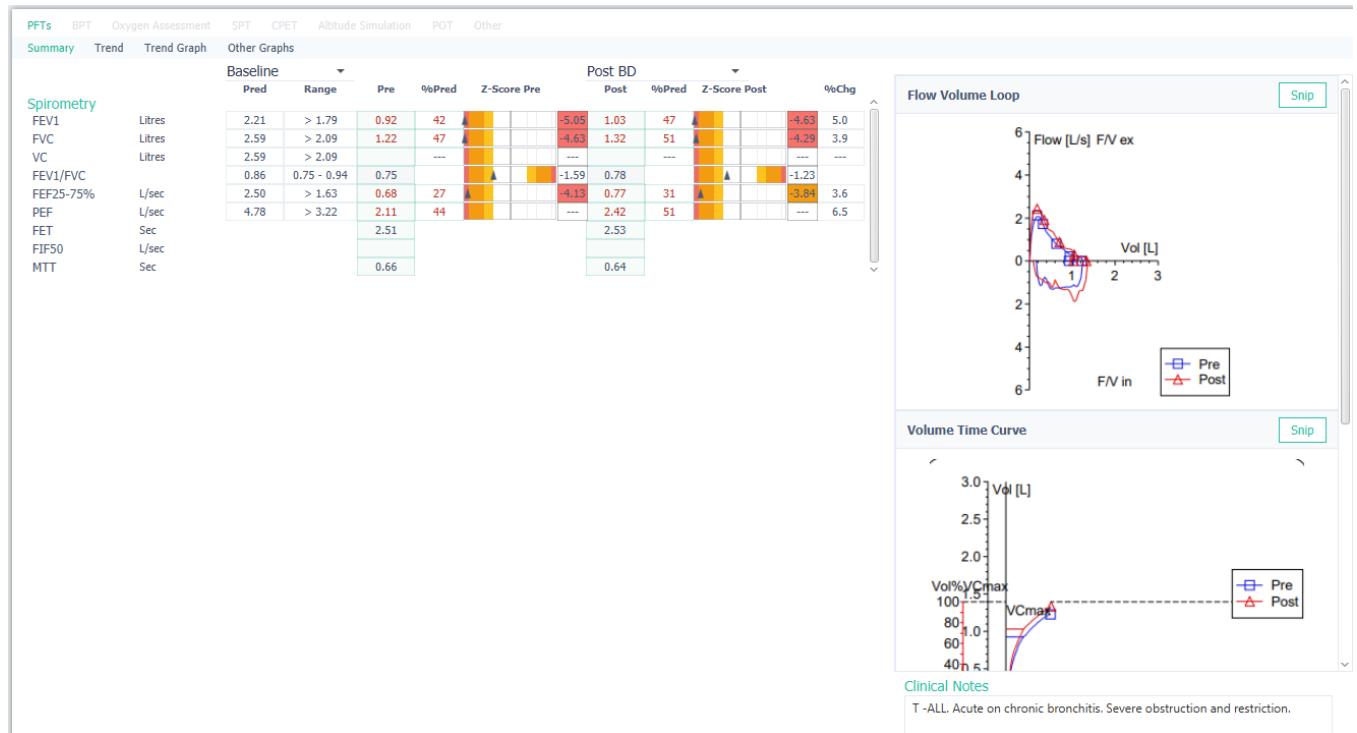


Clinical comment:

Baseline O2 saturations normal for the majority of the night, borderline 93-96% for last 2 hours of the study. No significant sleep related desaturations.

Repeat spirometry with BD: 23/04/2024

Stated indications: T -ALL. Acute on chronic bronchitis. Severe obstruction and restriction.



Clinical comment: Severe restrictive defect. No significant response to bronchodilator. Minimal improvement from 11/4/24.

Patient on RITH (respiratory in the home), for IV antibiotic treatment.

Baseline spirometry: 29/04/2024

Stated indications: Chronic wet cough. PMH T-ALL



Clinical comment: Spirometry: moderate restrictive and mild obstructive defect

Nasal Nitric Oxide testing performed (nNO): 06/05/2024

Stated indications: Chronic wet cough. PMH T-ALL

Method	Velum closure		
Device Model	Ecomedics CLD-88		
	Measure 1	Measure 2	% Difference
Ambient NO	ppb	2	
Sampling rate	L/min	0.33	
nNO - Left nare	ppb	109.8	-6.1
nNO - Right nare	ppb	116.9	
Inter-nasal Diff	%		
Highest nNO	(highest nNO reported minus ambient NO if > 20ppb)	nL/min	38.6
LLN		nL/min	233
Reference		nL/min	Leigh et al, 2013
Quality grade			B
PICADAR Score			0

Criteria for abnormal nNO by sampling technique in children aged 1 - 18 years (Beydon, 2015). Oral Exhalation against a Resistance (OER-nNO) < 274 ppb; Tidal Breathing (TB-nNO) < 133 ppb.

Clinical comment:

- Nasal nitric oxide low.

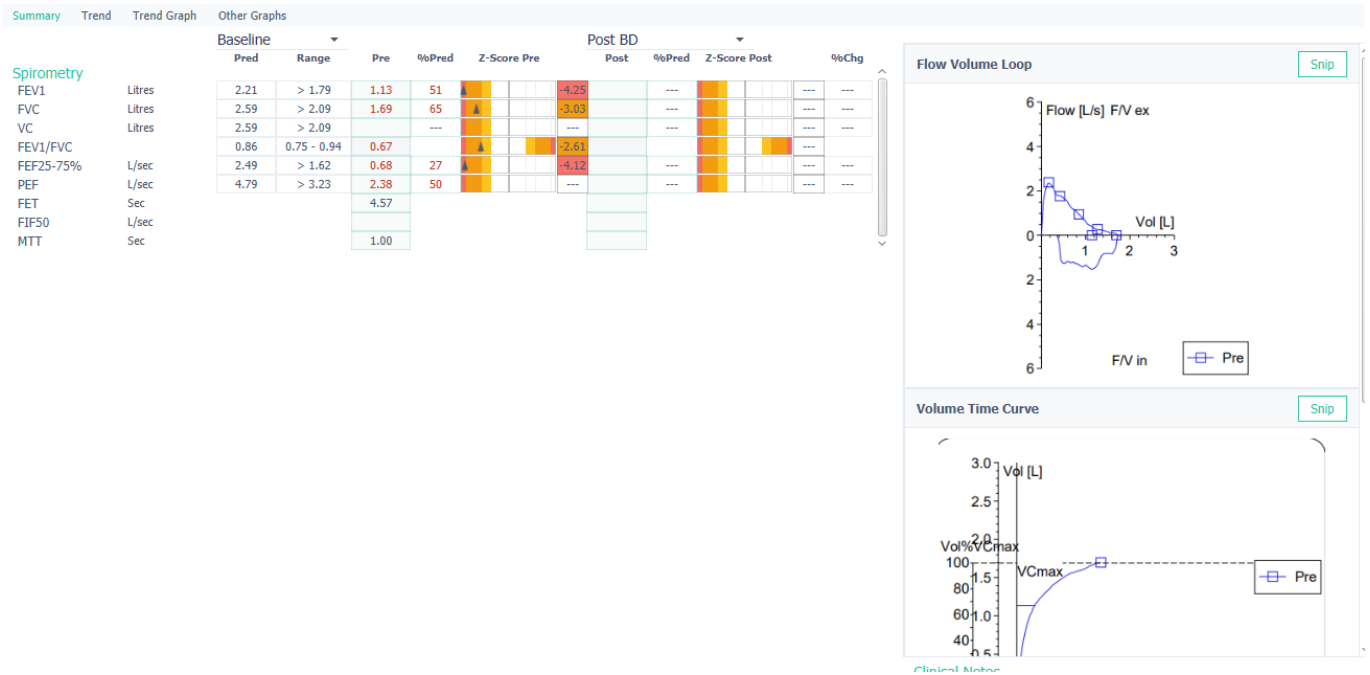
PICADAR Score = 4.

2 week IV antibiotic treatment with BD physiotherapy

- Cough still wet and productive.
- Antibiotics changed due to LFT results including 3rd week of chest physiotherapy.

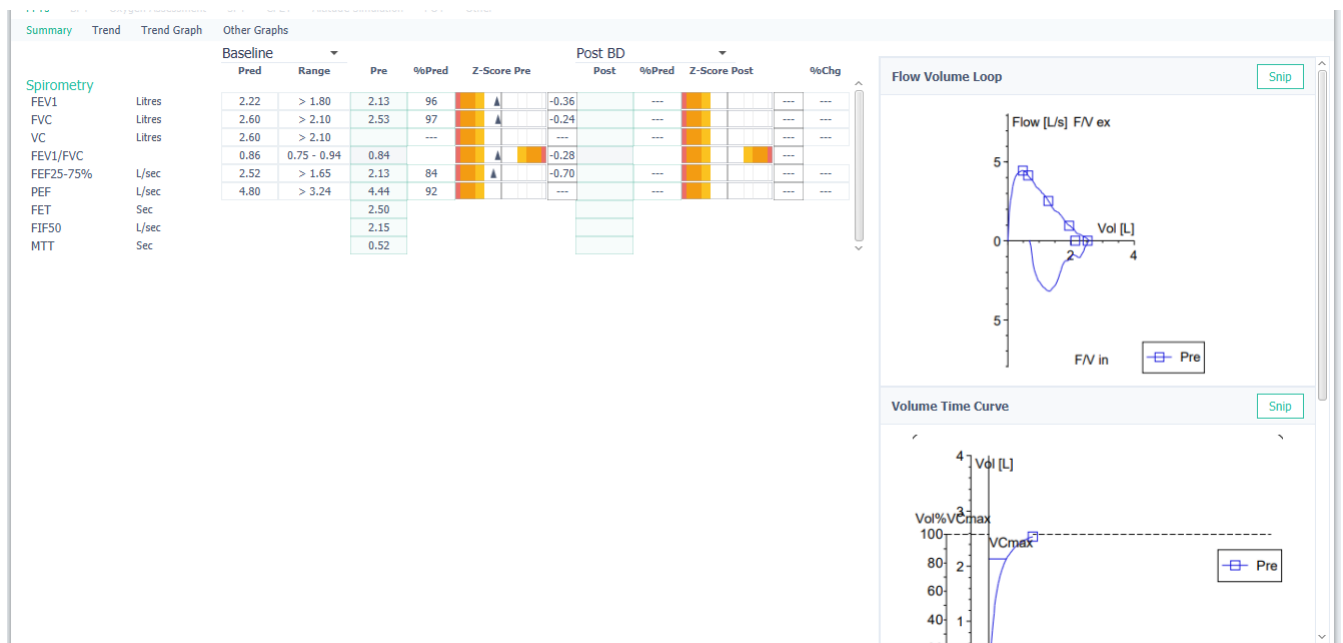
Repeat spirometry 06/05/2024

Stated indications: Chronic wet cough.



Clinical comments: Unable to obtain acceptable spirometry results on this occasion.

Repeat spirometry 04/06/2024



Clinical comments: Spirometry is within normal limits. There has been significant improvement in both FEV1 and FVC since 06/05/2024.

CT shows improvement, bronchiectasis still present. Wet cough improved but still present.

Patient came back 3 months later for repeat baseline spirometry which had remained within normal limits. PCD genetic testing is still to be performed.