PFT Interpretation – Rapid Guide

Before the numbers / Quality control
- Review age, gender, smoking status, BMI, indication, flow-volume curves
- Quality control
  - Three acceptable maneuvers with repeatable values: Two highest values of FVC and FEV₁ should be within 150mL (100mL if FVC ≤ 1L)
  - Good start (back extrapolation < 5% of FVC or 150 mL)
  - No cough or artifact in initial expiratory loop
  - Post-expiratory flow should be ≥ 6 seconds or 1 second plateau

Spirometry
- Normal FEV₁ and FVC 80-120% predicted
- FEV₁/VC increased: suggests restriction
- FEV₁/VC < LLN (ATS) or < 70% (GOLD): airflow obstruction present
  - Severity* FEV₁ (% pred)
    - Mild ≥80%
    - Moderate 50-79%
    - Severe 30-50%
    - Very severe <30%
- Either forced (FVC) or slow (SVC) vital capacity can be used to determine FEV₁/VC ratio

Bronchodilator response
- Positive response: ↑ FEV₁ or FCV by ≥ 12% and ≥ 200ml
- Lack of bronchodilator response does not preclude bronchodilator therapy

Lung volumes
- TLC < LLN (ATS) or < 80% (GOLD): restriction present
  - Severity TLC (% pred)
    - Mild >70%
    - Moderate 50-69%
    - Severe <50%
- Other Lung Volumes:
  - VC: ↓ in restriction or air trapping
  - RV & FRC: ↑ with air trapping
  - RV & FRC: ↓ with restriction
  - ERV: ↓ in obesity, look at BMI
- TLC > 120%: hyperinflation (if obstruction present)

Diffusion capacity
- DL_{CO} >120%: L → R shunt, alveolar hemorrhage, polycythemia
- DL_{CO} < LLN (ATS) or < 80% (GOLD): low; context to interpret
  - Severity DL_{CO} (% pred)
    - Mild ≥60%
    - Moderate 40-60%
    - Severe <40%
- Context:
  - Obstruction present: emphysema
  - Restriction present: parenchymal disease, lung resection
  - Normal spirometry & lung volumes: anemia, early interstitial lung disease, pulmonary vascular disease
**Methacholine Challenge**

**PC$_{20}$ (mg/ml)**
- >16  Normal bronchial response
- 4-16  Borderline BHR
- 1-4  Mild BHR
- <1.0  Moderate-severe BHR

PC$_{20}$ = provocation concentration at which there is a 20% decrease in FEV$_1$.

Contraindication = FEV$_1$ < 60%

**Flow-volume Loop Abnormalities**

**Obstruction:**
- **Extrathoracic**
- **Intrathoracic**
- **Fixed**