Respiratory Initiatives:
GOLD - ABCD, CAT Scores
The Global Initiative for Chronic Obstructive Lung Disease (GOLD)

**Classification of airflow limitation severity in COPD**
*(Based on post bronchodilator FEV₁)*

In patients with $\text{FEV₁/FVC} < 0.70$:

<table>
<thead>
<tr>
<th>GOLD 1:</th>
<th>Mild</th>
<th>FEV₁ ≥ 80% predicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLD 2:</td>
<td>Moderate</td>
<td>50% ≤ FEV₁ &lt; 80% predicted</td>
</tr>
<tr>
<td>GOLD 3:</td>
<td>Severe</td>
<td>30% ≤ FEV₁ &lt; 50% predicted</td>
</tr>
<tr>
<td>GOLD 4:</td>
<td>Very Severe</td>
<td>FEV₁ &lt; 30% predicted</td>
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</tbody>
</table>
Choice of Thresholds

► COPD Assessment Test (CAT™)
► Chronic Respiratory Questionnaire (CCQ®)
► St George’s Respiratory Questionnaire (SGRQ)
► Chronic Respiratory Questionnaire (CRQ)
► Modified Medical Research Council (mMRC) questionnaire
Assessment of exacerbation risk

COPD exacerbations are defined as an acute worsening of respiratory symptoms that result in additional therapy

- Classified as:
  - **Mild** (treated with SABDs only)
  - **Moderate** (treated with SABDs plus antibiotics and/or oral corticosteroids) or
  - **Severe** (patient requires hospitalization or visits the emergency room). Severe exacerbations may also be associated with acute respiratory failure.

Blood eosinophil count may also predict exacerbation rates (in patients treated with LABA without ICS).
ABCD assessment

Spirometrically confirmed diagnosis → Assessment of airflow limitation → Exacerbation history

Post-bronchodilator FEV₁/FVC < 0.7

<table>
<thead>
<tr>
<th>GOLD</th>
<th>FEV₁ ( % predicted )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>≥ 80</td>
</tr>
<tr>
<td>2</td>
<td>50–79</td>
</tr>
<tr>
<td>3</td>
<td>30–49</td>
</tr>
<tr>
<td>4</td>
<td>&lt; 30</td>
</tr>
</tbody>
</table>

≥ 2 or ≥ 1 leading to hospital admission

0 or 1 (not leading to hospital admission)

Assessment of symptoms/risk of exacerbations

C D
A B

mMRC 0–1  mMRC ≥ 2
CAT < 10  CAT ≥ 10

Symptoms
ABCD Assessment Tool

Example

► Consider two patients:
   ➢ Both patients with $\text{FEV}_1 < 30\%$ of predicted
   ➢ Both with CAT scores of 18
   ➢ But, one with 0 exacerbations in the past year and the other with 3 exacerbations in the past year.

► Both would have been labelled **GOLD D** in the prior classification scheme.
► With the new proposed scheme, the subject with 3 exacerbations in the past year would be labelled **GOLD grade 4, group D**.
► The other patient, who has had no exacerbations, would be classified as **GOLD grade 4, group B**.

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“COPD is a common, preventable, and treatable disease that is characterized by persistent respiratory symptoms and airflow limitations that are due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases.”

The report emphasizes that “COPD may be punctuated by periods of acute worsening of respiratory symptoms, called exacerbations.”
GOLD: Changes in 2017 COPD Initial Assessment

The primary criteria for diagnosis is unchanged: post-bronchodilator forced expiratory volume in 1 second (FEV₁)/forced vital capacity (FVC) less than 0.70.

Spirometry remains important to confirm the diagnosis in those with classic symptoms of dyspnoea, chronic cough, and/or sputum production with a history of exposure to noxious particles or gases.

Patients should undergo:

- Spirometry to determine the severity of airflow limitation
- Assessment of dyspnoea using modified Medical Research Council (mMRC) or assessment of symptoms using COPD assessment test (CAT).
- Their history of exacerbations (including prior hospitalisations) should be recorded
GOLD: Changes in 2017 COPD Severity classification

GOLD 2017 dissociates spirometry findings from severity classification.

<table>
<thead>
<tr>
<th>Exacerbation History</th>
<th>Symptoms</th>
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<tbody>
<tr>
<td>≥2 or ≥1 leading to hospital admission</td>
<td>mMRC 0–1, CAT &lt;10</td>
</tr>
<tr>
<td>0 or 1 (not leading to hospital admission)</td>
<td>mMRC ≥2, CAT ≥10</td>
</tr>
</tbody>
</table>

GOLD group A: Low symptom severity, low exacerbation risk.
GOLD group B: High symptom severity, low exacerbation risk.
GOLD group C: Low symptom severity, high exacerbation risk.
GOLD group D: High symptom severity, high exacerbation risk.

The letter groups A to D provide information regarding symptom burden and risk of exacerbation which can be used to guide therapy.
GOLD: Changes in 2017 COPD Prevention

- Smoking cessation is key.
- Pharmacologic therapy can:
  - Reduce COPD symptoms, reduce the frequency and severity of exacerbations, and improve health status and exercise tolerance
  - Each treatment regimen should be individualised
  - Inhaler technique needs to be assessed regularly
- Influenza vaccination & pneumococcal vaccination decreases lower respiratory tract infections
- Pulmonary rehabilitation improves symptoms, quality of life, physical & emotional participation
- In patients with severe resting chronic hypoxemia, long-term oxygen therapy improves survival
- In patients with stable COPD and resting or exercise-induced moderate desaturation, long-term oxygen treatment should not be prescribed routinely.
- In patients with severe chronic hypercapnia and a history of hospitalisation for acute respiratory failure, long-term non-invasive ventilation may decrease mortality and prevent re-hospitalisation
- Palliative approaches are effective in controlling symptoms in advanced COPD
GOLD: Changes in 2017
Management of stable COPD

Group A: Start with single bronchodilator (short-or long-acting), escalate to alternative class of bronchodilator if necessary.

Group B: Start with LABA or LAMA, escalate to LABA/LAMA if symptoms persist.

Group C: Start with LAMA, escalate to LABA/LAMA (preferred) or LABA/ICS if exacerbations continue.

Group D: Start with LABA/LAMA (preferred) or LAMA monotherapy, escalate to LABA/LAMA/ICS (preferred) or try LABA/ICS before escalating to LAMA/LABA/ICS if symptoms persist or exacerbations continue; roflumilast and/or a macrolide may be considered if further exacerbations occur with LABA/LAMA/ICS.
Inhaled steroid review in mild or moderate COPD (FEV1>50% predicted)

A – Low cost, high impact interventions
- Review smoking status and offer help to quit with medication (usually combination nicotine replacement therapy or varenicline) and referral for behavioural support
- If breathless encourage pulmonary rehabilitation
- Is diagnosis correct and are comorbidities being addressed? – FEV1:FVC <0.7, smoking history, consider cardiac disease, bronchiectasis, anxiety
- Assess inhaler device technique and adherence

B – Assess COPD phenotype
- Are there frequent exacerbations (2 or more per year or 1 or more hospitalisations for severe exacerbations)?
- Are there features of asthma such as atopy, FEV1 reversibility to salbutamol (>12% or 400mls), strong family history of asthma, childhood asthma symptoms?
- Is peripheral blood blood eosinophil count often elevated >0.3 ?

If yes to any of these, then continue ICS, monitor for potential side-effects. If on high-dose inhaled corticosteroids (in particular seretide 250 evohaler or 500 accuhaler), consider switching to lower potency/lower cost ICS.
- If previous documented worsening of symptoms on withdrawal of high dose inhaled steroids or repeated exacerbations on medium strength then continue current ICS and monitor for potential side-effects?

C – Wean unnecessary ICS
Step down withdrawal of inhaled corticosteroid every 6-12 weeks with face to face review before each dose reduction and 2 weeks after a dose reduction. Be careful not to reduce LABA at the same time – advice on regimes is below. ICS monotherapy is not indicated in COPD. Check and reinforce correct inhaler technique regularly. Where they are equally effective, use dry powder inhalers (DPI) rather than metered dose inhalers (MDI) due to the much smaller carbon footprint of DPIs.
- Seretide 250 evohaler (sirdupla) 2puffs BD -> 125 2puffs BD -> 50 2puffs BD-> formoterol easyhaler 12mcg 1puff BD
- Seretide 500 accuhaler 1 puff BD -> 250 1pBD -> 100 1pBD -> formoterol
- Symbicort 400/12 one puff BD -> Symbicort 100/6 2 puff BD -> formoterol
- Symbicort 200/6 2 puffs BD -> 100/6 2 puffs BD -> Formoterol
- Symbicort 200/6 one puff BD -> Formoterol
- Symbicort 100/6 2 puffs BD -> Formoterol
- Duoresp 320/9 1 puff BD -> symbicort 100/6 2 puffs BD -> formoterol
- Duoresp 160/4.5 2 puffs BD -> symbicort 100/6 2 puffs BD -> formoterol
- Fostair 100/6 2 puffs BD -> seretide 50 evohaler -2 puffs BD -> formoterol

D – optimise bronchodilation
- Once ICS is withdrawn consider increasing bronchodilation with LAMA + LABA combination device
GOLD: Non-pharmacologic management of stable COPD

- Based on GOLD groups, personalised design could include:
  - Groups A, B, C and D: Addressing behavioural risk factors, including smoking cessation, maintaining or increasing physical activity, ensuring adequate sleep and a healthy diet
  - Groups B and D: Learning to self-manage breathlessness, energy conservation techniques, and stress management strategies
  - Groups C and D: Avoiding aggravating factors, monitoring and managing worsening symptoms
  - Group D: Advanced care planning and hospice breathlessness clinics
A patient-completed self-assessment tool.
A simple and reliable, disease specific measure of health status in COPD.
Assists in quantifying the impact of COPD on the patient’s health.
Not a diagnostic tool.
Can be used with other clinical assessment tools to ensure optimal management.
Compliments other COPD disease management tools such as smoking cessation or rehabilitation programmes.
CAT: Why should I use it?

- Quick and easy for patients to complete.
- Suitable for all COPD patients
- Enables you to gain a common understanding of the impact on their life
- It can help you monitor the effects of treatment
- You can download the CAT questionnaire from www.CATestonline.org
CAT: Why should I use it?

- A COPD patient completes when they arrive for a check-up or immediately before attending.
- 8 simple questions. It should be completed independently.
- Complete every 2 to 3 months to detect changes and trends.
- A change of 2 or more suggests a clinically significant difference or change in health status.
- A CAT score would not be expected to decrease by more than 1 per year.
- Worsening scores may indicate unreported exacerbations or not taking treatment effectively.
- May be used to assess the degree of recovery following an acute exacerbation by re-assessing the CAT score.
References

GOLD


CAT

- [www.CATestonline.org](http://www.CATestonline.org)

- Right Breathe – [https://www.rightbreathe.com](https://www.rightbreathe.com)