

## Clinical Guideline Highlights for the Hospitalist: The GOLD and NICE Guidelines for the Management of COPD

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**GUIDELINE TITLE:** Chronic obstructive pulmonary disease in over 16s: Diagnosis and management<sup>1</sup>

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**PRIOR VERSION(S):** NICE guideline CG101 June 2010, 2004

**FUNDING SOURCE:** Department of Health and Social Care, United Kingdom

**TARGET POPULATION:** Patients age 16 and older with Chronic Obstructive Pulmonary Disease (COPD)

**GUIDELINE TITLE:** Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (2019 Report)<sup>2</sup>

**RELEASE DATE:** November 14, 2018

**PRIOR VERSION(S):** 2017, 2016, 2015, 2014, 2013, 2008, 2001

**FUNDING SOURCE:** The Global Initiative for Chronic Obstructive Lung Disease (GOLD)

**TARGET POPULATION:** Adults with Chronic Obstructive Pulmonary Disease (COPD)

Chronic obstructive pulmonary disease (COPD), projected to be the third leading cause of death by 2020, accounts for 6% of deaths globally.<sup>3</sup> Hospitalization for COPD exacerbations is common and impacts patients' disease trajectory and mortality, with fewer than half of patients hospitalized for exacerbation surviving 5 years.<sup>4</sup> Hospitalization provides an opportunity to optimize care. Due to recent practice-changing evidence, the National Institute for Health and Care Excellence (NICE) and the Global Initiative for Chronic Obstructive Lung Disease (GOLD) published updated guidelines.

### KEY RECOMMENDATIONS

These are selected recommendations relevant to adult hospitalists. The GOLD guidelines grade recommendations by evidence strength from category A (randomized control trial data) to category D (expert consensus). The NICE guidelines relay strength of evidence through terminology referring to the presence or absence of a strong recommendation. Recommendations without evidence level specified are NS.

#### Diagnosis and Classification of COPD Severity

**Recommendation 1.** In patients with risk factors for and symptoms of COPD, spirometry is required to confirm the diagnosis, defined as a postbronchodilator FEV<sub>1</sub>/FVC ratio of <0.7 (NS, NICE, GOLD). The Global Lung Function Initiative

(GLI) 2012 reference ranges<sup>5</sup> are recommended (NS, NICE). **Recommendation 2.** Severity of airflow obstruction should be assessed according to reduction in the postbronchodilator FEV<sub>1</sub> as: Stage I, Mild: FEV<sub>1</sub> ≥80%; Stage II, Moderate: FEV<sub>1</sub> = 50%-79%; Stage III, Severe FEV<sub>1</sub> = 30%-49%; Stage IV, FEV<sub>1</sub> <30% (NS, NICE, GOLD). **Recommendation 3.** Reversibility testing (aka bronchodilator response) does not indicate long-term response to therapy (NS, NICE, GOLD). **Recommendation 4.** The combined COPD assessment to classify patient symptoms and disease severity in one of four groups (A, B, C, or D) based on exacerbation history and daily symptom control (NS, GOLD). Use the Medical Research Council dyspnea scale to classify symptoms (strong, NICE).

#### Pharmacologic COPD Management

**Recommendation 5.** Short-acting inhaled bronchodilators such as short-acting beta2 agonists (SABAs) or short-acting muscarinic antagonists (SAMAs) improve FEV<sub>1</sub> and symptoms. Combining SABA/SAMA is superior to monotherapy (A, GOLD). **Recommendation 6.** Long-acting bronchodilators, such as long-acting antimuscarinics (LAMAs) or long-acting beta2 agonists (LABAs), improve lung function and dyspnea and reduce exacerbations. Combination therapy (LABA/LAMA) is superior to using a single agent (LABA or LAMA) for improving FEV<sub>1</sub> and reducing exacerbations (A, GOLD). **Recommendation 7.** Triple therapy of inhaled corticosteroid ICS/LAMA/LABA is more effective than the individual components in reducing exacerbations in the case of moderate to severe COPD (A, GOLD). **Recommendation 8.** Treatment with an ICS increases pneumonia risk (A, GOLD). Discuss these side effects (Strong, NICE). **Recommendation 9.** Use SABAs and SAMAs as initial treatment for patients with COPD (Strong, NICE). LABAs and LAMAs are preferred over short-acting agents except for patients with mild

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symptoms (A, GOLD). **Recommendation 10.** For symptomatic patients on long-acting monotherapy, escalate to combination LABA/LAMA, or if asthmatic features or elevated eosinophils ( $\geq 300$  cells/ $\mu\text{L}$ ) are present, combination LABA/ICS (A, GOLD; Strong, NICE). **Recommendation 11.** Assess and correct patient inhaler technique (NS, GOLD; Strong, NICE).

### Nonpharmacologic COPD Management

**Oxygen. Recommendation 12.** Long-term oxygen supplementation increases survival in patients with resting arterial hypoxemia ( $\text{PaO}_2 < 55$  mm Hg) or hypoxemia ( $\text{PaO}_2 < 60$  mm Hg) with cor pulmonale (A, GOLD). **Recommendation 13.** In patients with moderate resting (89%-93%) or exercise-induced arterial desaturation (80%-90%), long-term oxygen does not improve outcomes (A, GOLD).<sup>6</sup> **Recommendation 14.** Consider long-term oxygen after a risk assessment of fall and burn risk. Do not offer oxygen to those who continue to smoke (Strong, NICE).

**Tobacco Cessation. Recommendation 15.** Offer smoking cessation to COPD patients (A, GOLD; Strong, NICE). **Recommendation 16.** Counseling intensity has a dose-response relationship with effective cessation. Pharmacotherapies complementing behavioral therapies are most successful (A, GOLD).

**Pulmonary Rehabilitation. Recommendation 17.** Provide rehabilitation to patients with high exacerbation risk and relevant symptoms (A, GOLD). Offer pulmonary rehabilitation to patients with recent hospitalizations and/or severe dyspnea (Strong, NICE).

**Immunizations. Recommendation 18.** Influenza and pneumococcal vaccinations (PPSV23 as well as PCV13 when age  $\geq 65$  years) are recommended for patients with COPD (NS, GOLD; Strong, NICE).

**Palliative Care. Recommendation 19.** For patients with end-stage COPD or poorly controlled symptoms, provide access to palliative care (NS, GOLD; Strong, NICE).

### Management of COPD Exacerbations and Patients at High Risk for Exacerbations

**Recommendation 20.** Use SABAs with or without SAMAs as initial bronchodilators to treat acute exacerbations (C, GOLD). **Recommendation 21.** Systemic corticosteroids for exacerbations improve lung function, oxygenation, and recovery time. Recommend 5 to 7 days of therapy (A, GOLD; Strong, NICE). **Recommendation 22.** Antibiotics shorten recovery time and reduce treatment failure and rehospitalization. Treatment should be 5 to 7 days (B, GOLD). Consider antibiotics while balancing the severity of symptoms and hospitalization need (Conditional, NICE). **Recommendation 23.** Noninvasive mechanical ventilation is the preferred mode of ventilation for COPD patients with acute respiratory failure without acute contraindications (A, GOLD). **Recommendation 24.** Avoid long-term oral corticosteroids therapy (A, GOLD). **Recommendation 25.** Consider roflumilast for patients with exacerbations despite LABA/ICS or LABA/LAMA/ICS, and seek respiratory medicine consultation (B, GOLD; Strong, NICE). For former smokers with exacerbations despite appropriate therapy, consider azithromycin (B, GOLD; Strong, NICE).

### CRITIQUE

GOLD is an international committee of experts who compile the report based on scientific literature review. NICE is an independent organization funded by Department of Health and Social Care in the United Kingdom responsible for evidence-based guidance on healthcare determined by an expert committee through scientific review and a transparent process that details committee formation and framework (GRADE) used and stakeholder input. While both guidelines review current publications, practice-influencing clinical trials of recent publication may be missed.

On the GOLD Science Committee, 17/20 members have pharmaceutical relationships, with no mitigation plan provided. The NICE guidelines detail a panel with few industry ties and a mitigation plan for potential conflicts of interest.

These recommendations comprehensively cover outpatient and inpatient COPD management. The GOLD and NICE guidelines are similar with the exception of recommendations surrounding use of oxygen. The NICE guidelines, based on the adverse events documented in the recent Long-Term Oxygen Treatment Trial,<sup>6</sup> recommend against oxygen use by patients who smoke because of the risk of fire-related injuries;<sup>7</sup> GOLD guidelines do not differentiate oxygen recommendation by patient population.

Differences in the strength of NICE and GOLD recommendations highlight areas for further study. Investigations determining distinct COPD phenotypes will likely influence future guidelines. More discriminative multidimensional prognostication tools are needed to improve precision surrounding prognosis.

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Disclosures: Dr. Neumeier has nothing to disclose. Dr. Keith reports having served on scientific advisory boards for Janssen and Daiichi Sankyo.

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