



Clinical Champion Update

Date: 5/11/21

Subject: COPD

It has been a while since we have reviewed COPD. One thing that primary care providers often encounter is that patients are given the diagnosis of COPD based on CXR findings (hyperinflation), or without objective findings on spirometry or PFT. It is important that if there were no reports on the patient's chart to verify the diagnosis, that the PCP orders studies to confirm/correct the diagnosis of COPD.

As clinical champions, we are in the early stages of piloting a pre-screening in Amherst and Northampton Health Centers focused on the cardinal symptoms in our patients who have smoked 100 cigarettes in their lifetime. Early identification can help slow disease progression as COPD carries significant morbidity and mortality. COPD currently affects more than 5% of the US population and is ranked as the fourth cause of death in the states. For this clinical champion update, we want to review the basics: Definition, cardinal symptoms, screening, and staging.

Definition:

The Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) is as follows:

"**COPD** is a common, preventable, and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases. The chronic airflow limitation that characterizes COPD is caused by a mixture of small airways disease (eg, obstructive bronchiolitis) and parenchymal destruction (emphysema), the relative contributions of which vary from person to person. Chronic inflammation causes structural changes, small airways narrowing, and destruction of lung parenchyma. A loss of small airways may contribute to airflow limitation and mucociliary dysfunction, a characteristic feature of the disease."

Before GOLD standards, COPD was further classified into subtypes: Chronic Bronchitis, Emphysema and chronic obstructive asthma. Understanding the features of these conditions can help guide effective management.

A few clinical pearls about the above;

- Chronic bronchitis and emphysema with airflow obstruction commonly occur together. Some of these patients may also have asthma.
- Persons with chronic bronchitis, emphysema, or both are not considered to have COPD unless they have airflow obstruction.
- Patients with airflow obstruction due to diseases that have a known etiology or a specific pathology (eg, cystic fibrosis, bronchiectasis, obliterative bronchiolitis) are not considered to have COPD.
- Many individuals have inflammatory features of both asthma and chronic bronchitis/emphysema.

- Patients with asthma whose airflow obstruction is completely reversible are not considered to have COPD. Patients with asthma whose airflow obstruction does not remit completely are considered to have COPD.

Cardinal Symptoms:

The three cardinal symptoms of COPD are dyspnea, chronic cough, and sputum production

Screening and Staging:

Spirometry is essential to confirm diagnosis and staging of COPD. If values are abnormal, a post bronchodilator test is indicated. Airflow limitation that is irreversible or only partially reversible with bronchodilator is suggestive of COPD rather than asthma. A post bronchodilator $FEV_1/FVC < 0.7$ is used to establish the presence of airflow limitation.

In the presence of low FEV_1/FVC , the % of predicted FEV_1 is used to determine the severity of airflow limitation.

- § GOLD 1: Mild ($FEV_1 \geq 80\%$ predicted)
- § GOLD 2: Moderate ($50\% \text{ predicted} \leq FEV_1 < 80\%$ predicted)
- § GOLD 3: Severe ($30\% \text{ predicted} \leq FEV_1 < 50\%$ predicted)
- § GOLD 4: Very severe ($FEV_1 < 30\%$ predicted)

Pulmonary function tests are the cornerstone of diagnosis and determining severity of airflow obstruction, assess response to medication and follow disease progression. Note that supplemental oxygen is indicated for patients who sat $< 88\%$ on RA.

- 6 second forced expiratory volume (**FEV6**), obtained by stopping the expiratory effort at 6 seconds is an acceptable surrogate for the FVC. Use FEV_1/FEV_6 .
- Use **DLCO** when hypoxemia is present by pulse oximetry (RA sat < 92), dyspnea out of proportion to the degree of airflow obstruction and before lung surgery.

Accurate staging guides appropriate management of acute and chronic symptoms. This month, try to ensure your patients with COPD have spirometry or Pulmonary Function Tests in their chart.

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COPD Clinical Champions