

## **Guideline Concordance of Inhaled Corticosteroid Prescribing in Patients with Chronic Obstructive Pulmonary Disease (COPD)**

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**Practice Site:** Carilion Clinic; Roanoke Memorial Hospital – Roanoke, Virginia

**Purpose/Background:** Numerous observational studies and clinical trials have demonstrated that use of inhaled corticosteroids (ICS) increases the risk of pneumonia. Increased blood eosinophil count is a predictive marker for response to ICS-based treatment in patients with chronic obstructive pulmonary disease (COPD). The Global Initiative for Chronic Lung Disease (GOLD) recommends blood eosinophil counts of 300 cells per microliter or more as a threshold for adding ICS-based therapy; a threshold of 100 cells per microliter can be considered in patients based on their exacerbation history.

**Objective:** To evaluate the prescribing patterns of ICS for COPD treatment in relation to eosinophil count and determine if practice at Carilion Clinic aligns with the GOLD Guidelines.

**Methods:** This was a single-health system, retrospective, cross-sectional study conducted within Carilion Clinic. This was a Health Care Delivery Improvement Project, and as such was not reviewed as Human Subjects Research. Patient's 18 and older prescribed an ICS by a Carilion provider with a serum eosinophil count within the year prior were included. Patients with a history of asthma, cancer, structural lung disease, or COVID-19 were excluded. The primary outcome was prevalence of ICS initiation per 2020 GOLD guideline concordance. To be considered concordant patients must have been on a long-acting bronchodilator and have a high risk for COPD exacerbations. Secondary outcomes included the prevalence of pneumonia leading to hospitalization, frequency of COPD exacerbations, and prevalence of patients identified for ICS de-escalation.

**Results:** Prescribing patterns were found to be in concordance with the 2020 GOLD guidelines 50% of the time. There were no significant differences in rates of pneumonia at 12 months between the concordant and discordant group (4% vs. 8%;  $p=0.674$ ). Of those that experienced pneumonia only one resulted in hospitalization, in the discordant group. More patients in the concordant group experienced COPD exacerbations compared to discordant (36% vs. 12%;  $p=0.382$ ). Nine patients in the discordant group were identified as candidates for de-escalation of ICS therapy.

**Conclusion:** This study revealed that the health-system providers are in concordance with the 2020 GOLD Guideline recommendations for ICS therapy 50% of the time, leading to potentially unnecessary additional drug therapy for remaining 50% of patients. Due to the small sample size and short duration of follow-up this study was not able to identify differences in adverse effects associated with the discordant use of ICS therapy.