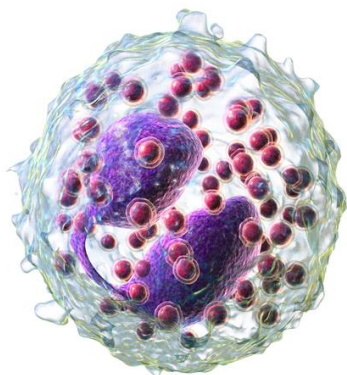


Blood Eosinophils: A Biomarker in COPD



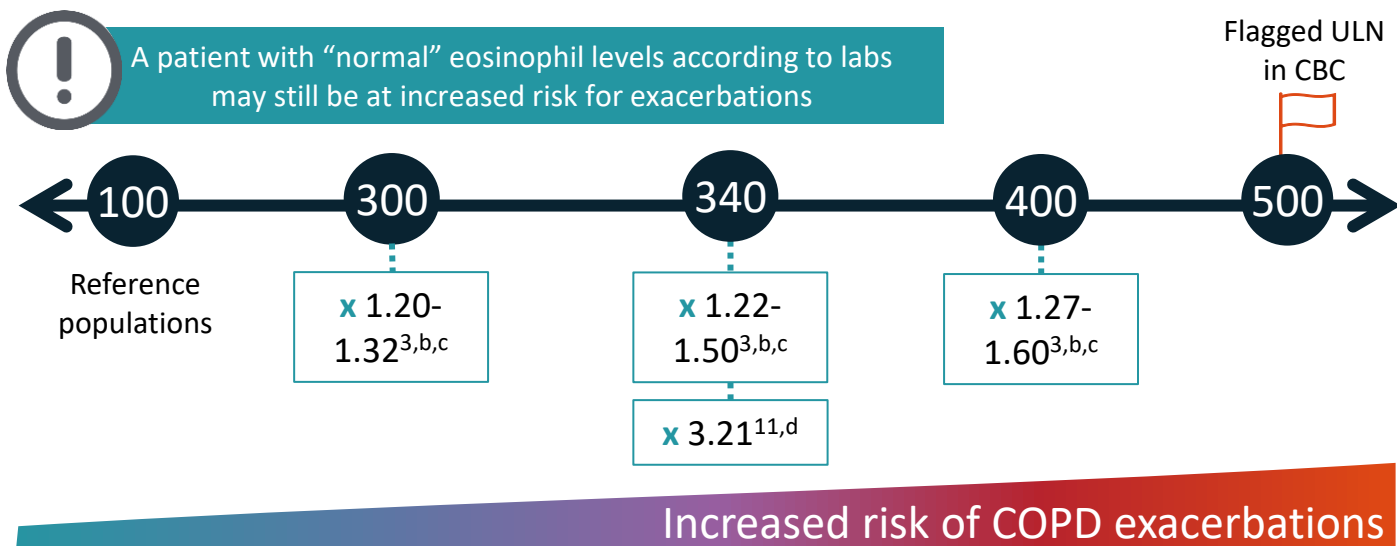
How do I know if my patient has COPD with type 2 inflammation?



Elevated blood eosinophil levels (EOS) are detectable by ordering a CBC with differential

Up to 40%¹⁻¹⁰ of patients with COPD have evidence of **type 2 inflammation in the lungs**, as evidenced by elevated blood eosinophil levels

What are some critical eosinophil cut-offs in COPD that may predict poorer outcomes?



What risks are associated with elevated blood eosinophil levels?



Elevated blood EOS is associated with higher:

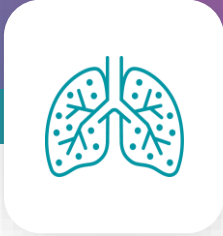
- ED and outpatient visits¹²
- Numbers of prescriptions regardless of inhaled therapy use¹²
- Rate of lung function decline¹³



Elevated blood EOS is associated with¹⁴:

- ↑ Risk of 1-year COPD-related readmission
- ↓ Time to first COPD-related readmission
- ↑ Number 1-year COPD-related ED visits

CBC: Complete Blood Count ^aRisk of 1-year COPD-related readmission. Observational cohort study (n=479), patients stratified into the eosinophilic group (n=173) blood eosinophil count baseline ≥200 cells/μL and/or ≥2% of the total white blood cell (WBC) count. ^bCOPDGene study (n=1553). Risk estimates derived from negative binomial regression models adjusted for age, sex, race, previous exacerbations, gastroesophageal reflux, SGRQ score, post-BD FEV₁ percentage predicted, and WBC count. ^cECLIPSE multicenter, multinational, 3-year longitudinal study; 1895 patients with GOLD spirometry grade 2 to 4 with complete CBC and 3-year follow-up data were analyzed. ^dPatients with clinical COPD: smoking history ≥10 pack-years, FEV₁ ≤70% predicted, and ≥1 moderate or severe exacerbation in previous year. Copenhagen general population study (n=203). Risk Ratio for severe COPD exacerbation defined as exacerbation requiring hospitalization. All reported risk estimates are significantly different from reference (<100 cells/uL).



How does a blood eosinophil count impact initial management decisions, according to GOLD guidance?¹⁵

Initial assessment of COPD

5

fundamental aspects

- ▶ Airflow obstruction
- ▶ Current symptoms
- ▶ **Exacerbation history**
- ▶ **Blood eosinophil count**
- ▶ Multimorbidity



A blood eosinophil count should be one of the five fundamental aspects of initial assessment



≥2 moderate COPD exacerbations or ≥1 leading to hospitalization



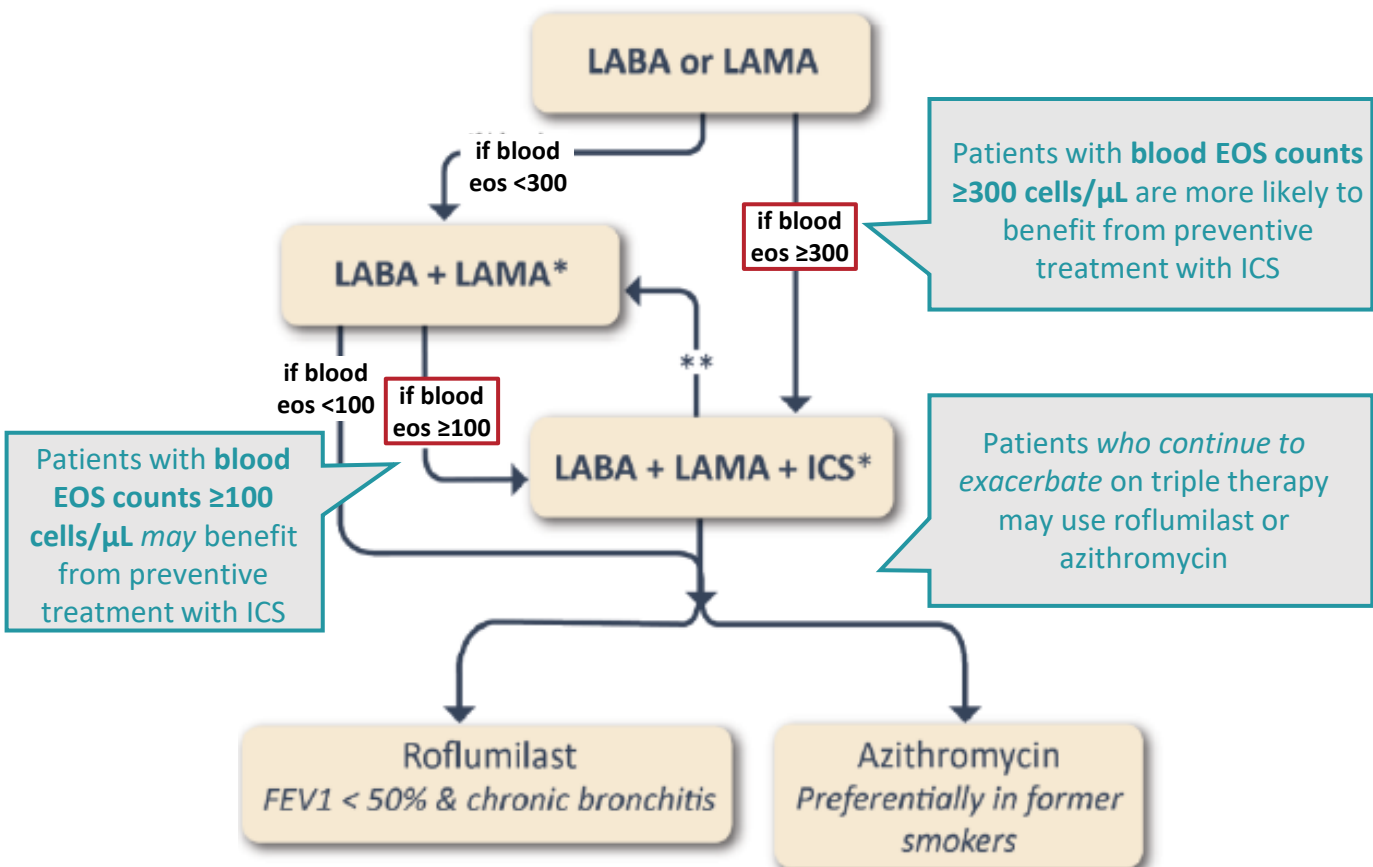
Consider LABA+LAMA+ICS if blood EOS ≥300 cells/μL

How does a blood eosinophil count inform post-exacerbation management, according to GOLD guidance?¹⁵



Following an exacerbation and during routine follow-up (ca. 12 months), order a CBC with differential to determine blood eosinophil levels

EXACERBATIONS



Halpin DMG, et al. EclinicalMedicine. 2019;14:32–41. 2. Casanova C, et al. Eur Respir J. 2017;50:1701162. 3. Yun JH, et al. J Allergy Clin Immunol. 2018;141:2037–2047. 4. Oshagbemi OA, et al. COPD. 2019;16:152–159. 5. Oshagbemi OA, et al. Am J Respir Crit Care Med. 2017;195:1402–1404. 6. Ajithkumar CS. Ind J Basic Appl Med Res. 2018;7:223–228. 7. Wu HX, et al. Front Med (Lausanne). 2019;6:282. 8. Singh D, et al. Eur Respir J. 2014;44:1697–1700. 9. Bafadhel M, et al. Am J Respir Crit Care Med. 2011;184:662–671. 10. Leigh R, et al. Eur Respir J. 2006;27:964–971. 11. Vedel-Krogh S, et al. Am J Respir Crit Care Med. 2016; 193:965–974. 12. Müllerova H, et al. Int J Chron Obstruct Pulmon Dis. 2019;14:683–696. 13. Tan et al. Eur Respir J 2021; 57(5) 14. Bélanger M, et al. Int J Chron Obstruct Pulmon Dis. 2018;13:3045–3054. 15. https://goldcopd.org/wp-content/uploads/2023/03/GOLD-2023-ver-1.3-17Feb2023_WMV.pdf. Accessed March 2024. Treatment diagram © [2022–2023] Global Strategy for Diagnosis, Management and Prevention of COPD all rights reserved. Use is by express license from the owner.