Where COPD Care is Heading: Major Takeaways from ATS 2026

Authors:	*Rakeem Levy,[1] Carlos Gracidas[2] 1. Caribbean Medical University, Willemstad, Curaçao 2. Universidad Marista de Merida, Mexico *Correspondence to Rakeemlevymed@gmail.com

Disclosure:	The authors have declared no conflicts of interest.
Keywords:	AI, COPD, CT phenotyping, digital health technologies, eosinophilic COPD, mepolizumab, precision medicine.
Citation:	Respir AMJ. 2026;4[1]:30-33. https://doi.org/10.33590/respiramj/5785Y50A

AS THE American Thoracic Society (ATS) International Conference returned to Orlando, Florida, USA, it focused on important advances in COPD, reflecting the increase in personalized and technology-driven care. Across clinical sessions and research presentations, investigators highlighted biologic therapies, AI-assisted imaging, and digital respiratory tools designed to improve symptom control, reduce exacerbations, and better characterize COPD phenotypes.[1] At the same time, several presentations emphasized the ongoing real-world challenges in COPD management, including barriers to treatment access and implementation in everyday clinical practice.

BIOLOGIC THERAPIES: MOVING TOWARD A MORE PERSONALIZED APPROACH

The biologics picture for COPD took center stage at ATS 2026, with three key datasets advancing our understanding of targeted therapy in specific inflammatory pathways in this population. Building on the FDA approval of mepolizumab for eosinophilic COPD, Criner et al.[2] presented a pooled analysis of the Phase III METREX, METREO, and MATINEE trials, demonstrating that mepolizumab added to inhaled triple therapy significantly reduced exacerbations requiring emergency department visits and/or hospitalizations by 23% versus placebo in patients with a blood eosinophil count >150 cells/µL. A complementary pooled analysis by Singh et al.[3] extended this concept beyond exacerbation reduction, reporting that disease stability at Week 52 was achieved in a considerably larger number of patients receiving mepolizumab than in those receiving placebo, with fewer exacerbations in patients with the biologic. These findings support the use of blood eosinophils as a relevant biomarker for identifying patients with COPD who may benefit from targeted anti-IL-5 therapy.[3]

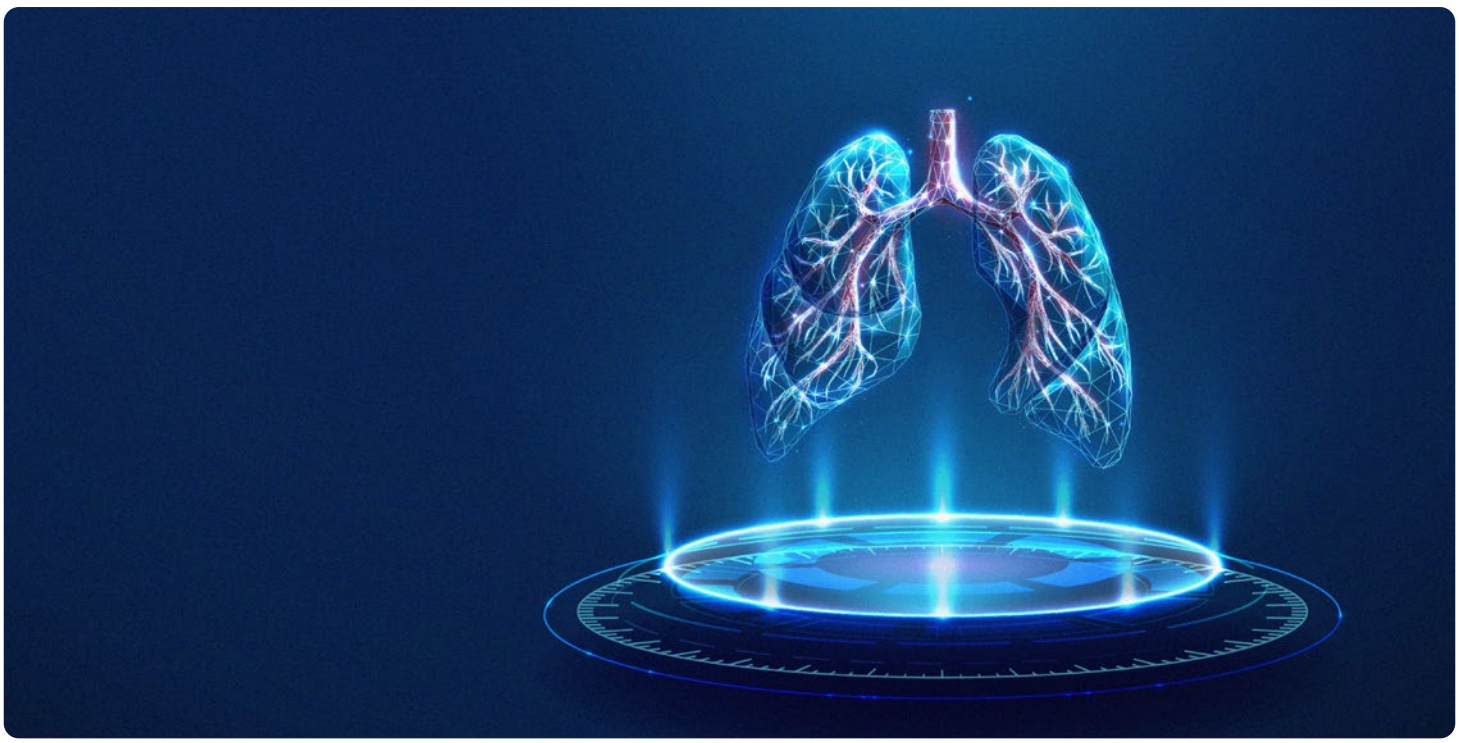
> **Across clinical sessions and research presentations, investigators highlighted biologic therapies, AI-assisted imaging, and digital respiratory tools**

DUAL PDE3/PDE4 INHIBITION: A PRACTICAL ADD-ON OPTION

As the discussion of COPD therapeutics expanded beyond biologics, ensifentrine emerged as a non-biologic add-on strategy for patients who remain symptomatic despite standard inhaled maintenance therapy. A first-in-class dual phosphodiesterase (PDE)3/PDE4 inhibitor with bronchodilator and anti-inflammatory effects represents a distinct therapeutic approach in this population. In the RELIEF study, an observational 6-month longitudinal analysis of patients initiating ensifentrine, most participants were already receiving stable triple therapy; among patients with a baseline COPD Assessment Test (CAT; GSK, London, UK) score >10, the mean CAT score improved from 24.6 at baseline to 20.3 at 1 month and 19.9 at 3 months, with 65% meeting the CAT responder threshold at both time points.[4] Another real-world analysis of 2,372 patients receiving ensifentrine with concomitant dual or triple therapy showed an 11% reduction in annualized severe exacerbations and a 17% reduction in COPD emergency room visits after treatment initiation.[5] Together, these findings suggest that ensifentrine may offer a non-biologic add-on alternative for patients with persistent symptoms or exacerbation-risk events on maintenance therapy, although longer-term data will be needed to better define its role in routine COPD management.

BEYOND SPIROMETRY: IMAGING AND AI-ASSISTED COPD PHENOTYPING

ATS 2026 highlighted a parallel shift toward precision phenotyping in COPD. The session 'COPD Biomarkers and Phenotyping: Multi-Omic Insights, AI-Driven Discovery, and Clinical Implications' framed COPD as a heterogeneous disease that may require more refined tools than spirometry. This concept was exemplified by analyses of the SOURCE and COPDGene cohorts, in which CT-based assessment of mucus plugging helped identify structural changes associated with disease activity and prognosis. In COPDGene, an AI-based algorithm was used for the automated detection of CT airway mucus plugs in 8,971 participants. Greater mucus plug burden was associated with lower post-



bronchodilator forced expiratory volume in 1 second, increased air trapping, worse quality-of-life scores, reduced 6-minute walk distance, and an independently higher risk of mortality and exacerbations.[6] A complementary analysis from the SOURCE early COPD progression cohort applied a deep learning pipeline to baseline CT scans from 657 younger participants with smoking history, identifying mucus plugs in 7% of participants. Although uncommon, mucus plugs were associated with emphysema, CT-defined functional small-airway disease, and more frequent exacerbations.[7] These findings suggest that an AI-assisted CT analysis may help transform mucus plugging from a visually recognized imaging feature into a quantifiable biomarker with potential value for COPD phenotyping, risk stratification, and future phenotype-directed interventions.

DIGITAL TOOLS FOR EARLIER COPD DETECTION AND MONITORING

Accessible technologies also emerged as a promising strategy to support earlier COPD detection and longitudinal monitoring. In a multicenter prospective study, Wang et al.[8] evaluated Cough Search, a multimodal AI-based cough analysis software for the auxiliary diagnosis of COPD. Among 378 participants, Cough Search demonstrated 92% sensitivity and 89% specificity as a standalone tool, and, when combined with physician assessment, achieved 93% sensitivity and 94% specificity, showing higher sensitivity than portable spirometry-assisted physician diagnosis while maintaining non-inferior specificity.[8] A separate but prospective study evaluated smartphone-based spirometry using machine learning and showed strong agreement with conventional spirometry for forced expiratory volume in 1 second/forced vital capacity, excellent twice-daily reproducibility, and the ability to capture diurnal variation and deviations from baseline.[9] Together, these studies suggest the availability of an innovative respiratory tool that may help extend COPD care beyond clinic-based testing, supporting earlier identification of high-risk patients and more continuous monitoring of disease instability.

CLOSING REAL-WORLD GAPS IN COPD CARE

Improving outcomes in COPD requires more than identifying and administering effective pharmacologic therapies. The access, treatment implementation, and social factors that shape real-world care were emphasized during the Conference. The US DUALITY disparities study, which included 338,947 patients with COPD who had experienced one severe or two moderate exacerbations, found that only 6.9% of patients initiated triple therapy within 12 months, with a variation depending on age, sex, race/ethnicity, payer coverage, geography, and symptom profile, and with higher initiation among patients with documented symptoms.[10] A separate study focused on food insecurity in COPD demonstrated that 34.5% of patients with COPD self-reported food and/or financial insecurity.[11] Together, these findings suggest that future COPD care will need to go beyond effective medication prescriptions to address implementation gaps, recognize social needs, and ensure that they are addressed as part of routine COPD care.

CONCLUSION

The COPD updates presented at ATS 2026 reflected a field in constant flux toward a uniform treatment model of individualized, clinically practical care. Biologic therapies highlighted the importance of identifying treatable inflammatory traits, while ensifentrine underscored the need for additional non-biologic options for patients who remain symptomatic despite maintenance therapy. At the same time, AI-assisted imaging and digital respiratory tools showed that COPD assessment may extend beyond spirometry-based diagnosis and stratification, supporting precise

phenotyping, earlier detection, and closer monitoring. However, the Conference also addressed the need to translate innovation into real-world care. Persistent gaps in guideline-directed therapy initiation and the under-recognition of social needs, such as food insecurity, remind healthcare workers that improvements in outcomes will depend not only on new therapies and technologies, but also on an equitable healthcare systems and patient-centered support. Together, these findings show that the future of COPD care will require matching personalized interventions with innovation to ensure that it reaches those most likely to benefit.

References

1. ATS Conference News. ATS 2026 Orlando sessions examine recent insights and unique challenges for treating COPD. 2026. Available at: https://www.atsconferencenews.org/ats-2026-orlando-sessions-examine-recent-insights-and-unique-challenges-for-treating-copd/. Last accessed: May 31, 2026.
2. Criner GJ et al. A34-11 Mepolizumab reduces the burden of chronic obstructive pulmonary disease exacerbations in a wide spectrum of patients: pooled results from phase III randomized controlled trials. Am J Respir Crit Care Med. 2026;212 (Suppl 1):aamag162.1629.
3. Singh D et al. A34-21 Disease stability is achievable in a wide spectrum of patients with chronic obstructive pulmonary disease receiving mepolizumab: pooled results from phase III randomized controlled trials. Am J Respir Crit Care Med. 2026;212(Suppl 1):aamag162.1639.
4. Washko GR et al. B24-20 Real-world COPD Assessment Test (CAT) outcomes of patients initiating ensifentrine: 3 month interim analysis of the RELIEF study. Am J Respir Crit Care Med. 2026;212(Suppl 1):aamag162.1779.
5. Mahler DA et al. B24-07 The effect of ensifentrine on symptoms in highly symptomatic patients at baseline according to two definitions: a post-hoc pooled analysis of the ENHANCE trials. Am J Respir Crit Care Med. 2026;212(Suppl 1):aamag162.1766.
6. Oyer JM et al. D96-01 AI-based detection of CT airway mucus plugs and clinical correlates in COPDGene. Am J Respir Crit Care Med. 2026;212 (Suppl 1):aamag162.2066.
7. Ram S et al. A16-04 Significance of mucus plugs in early COPD: an analysis of the SOURCE cohort. Am J Respir Crit Care Med. 2026;212 (Suppl 1):aamag162.1588.
8. Wang Q et al. B24-17 Auxiliary diagnosis of COPD with cough search and portable spirometry: a multicenter, prospective, comparative validation study. Am J Respir Crit Care Med. 2026;212(Suppl 1):aamag162.1776.
9. Boyle AD. B24-05 Smartphone spirometry for monitoring respiratory function - a prospective observational study. Am J Respir Crit Care Med. 2026;212(Suppl 1):aamag162.1764.
10. Chima-Melton C et al. A23-01 Clinical and social drivers of triple therapy initiation amongst patients with COPD exacerbations: results from the US DUALITY disparities study. Am J Respir Crit Care Med. 2026;212(Suppl 1):aamag162.1601.
11. Hart JL et al. A23-12 Starving for attention: a mixed-methods study of food insecurity in chronic obstructive pulmonary disease. Am J Respir Crit Care Med. 2026;212 (Suppl 1):aamag162.1612.