A Prospective Multicenter Study of an AI-Enabled Clinical Decision Support Software on Pulmonologist Follow-Up and Patient Outcomes after a COPD Exacerbation

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Rationale

- To reduce readmissions and mortality in COPD patients after a severe exacerbation, GOLD recommends follow-up with a pulmonologist within 30 days.[1-2]
- 30-day follow-up rates with a pulmonologist remain suboptimal and range from ~8% to 44%.[2-5]
- A scalable solution that could potentially close this care gap is Viz COPD, an AI-powered clinical decision support software (CDSS) that identifies COPD patients, synthesizes key EHR data to surface the relevant GOLD-aligned treatment recommendations, and coordinates care between provider teams.

Outcome Measures

Primary:

- The proportion of patients with a pulmonologist follow-up visit within 30 days after discharge

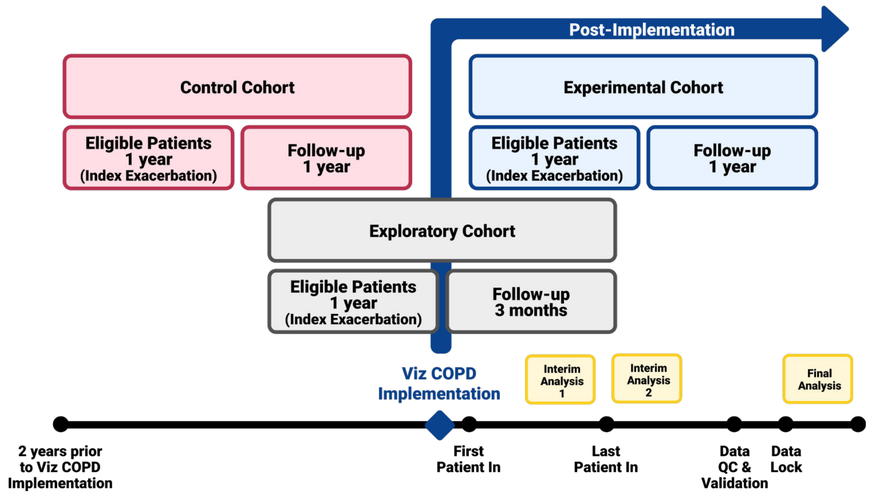
Secondary:

- Time from discharge to a pulmonologist follow-up
- The proportion of patients with a pulmonologist follow-up visit within 90 days after discharge
- Exacerbation rate, healthcare resource utilization, cardiovascular events, and all-cause mortality at 30-, 90-, and 365-days post-exacerbation
- The proportion of patients with all-cause readmissions
- The proportion of patients with pharmacological treatment consistent with the GOLD report at 30 and 90 days

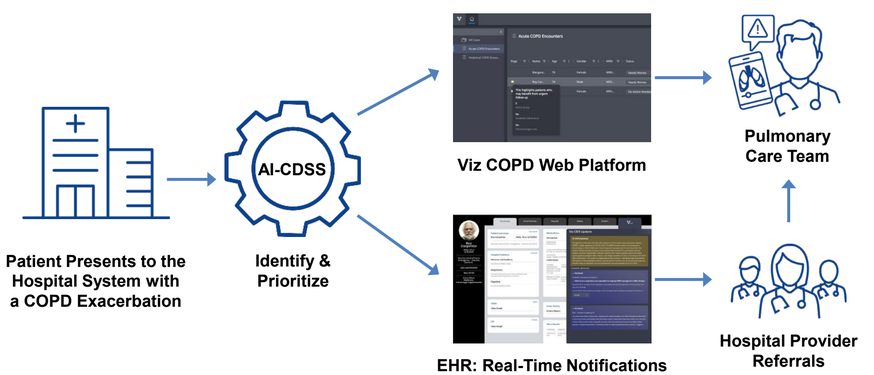
Exploratory:

- Evaluate whether historical CDSS-identified patients obtain pulmonologist follow-up within 30 and 90 days of alert
- Assess GOLD-aligned pharmacologic treatment during follow-up

Study Design Schematic



Clinical Workflow



Methods

- Multicenter, longitudinal, pre-post implementation study (NCT07118306) in geographically dispersed U.S. healthcare systems.
- A prospective post-implementation cohort of 485 patients will be compared to a matched retrospective control cohort of patients who presented to the same study sites under the standard of care clinical workflow before CDSS implementation.
- In a separate exploratory cohort of historical patients meeting study criteria, we will assess whether CDSS identification ≥ 30 days after an exacerbation can achieve pulmonologist follow-up in patients with no prior pulmonology care.
- Inclusion criteria: ≥ 40 years, COPD diagnosis, dual or triple long-acting maintenance inhaler therapy (LABA/LAMA, LABA/ICS, or LABA/LAMA/ICS), and an acute exacerbation resulting in a hospital visit.

Impact

- We aim to reduce the well-documented care gap by an AI-enabled clinical decision support software and timely follow-up with a pulmonologist.
- The results of this study will inform clinical practice and may provide a new care pathway for optimizing patient outcomes and reducing morbidity and mortality in this patient population.

References

[1]Global Strategy for Prevention, Diagnosis, and Management of COPD: 2026 Report. [2]Gavish et al. *Chest*. 2015;148:375–381; [3]Parikh et al. *COPD*. 2016:577; [4]Jiang et al. *PLoS ONE*. 2024;19:e0302681; [5]Saxena et al. *JAMA Netw Open*. 2022;5:e2222056.

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