

Background

- Patients with Chronic Obstructive Pulmonary Disease (COPD) have elevated respiratory and metabolic risks when undergoing anesthesia.
- Glucagon-Like Peptide-1 Receptor Agonists (GLP-1RA) use increases gastrointestinal symptoms and hypothetical aspiration risk.
- GLP-1RA use improves perioperative glycemic control and reduces cardiovascular complications [1].
- GLP-1RAs may reduce COPD exacerbations in patients with COPD [2].

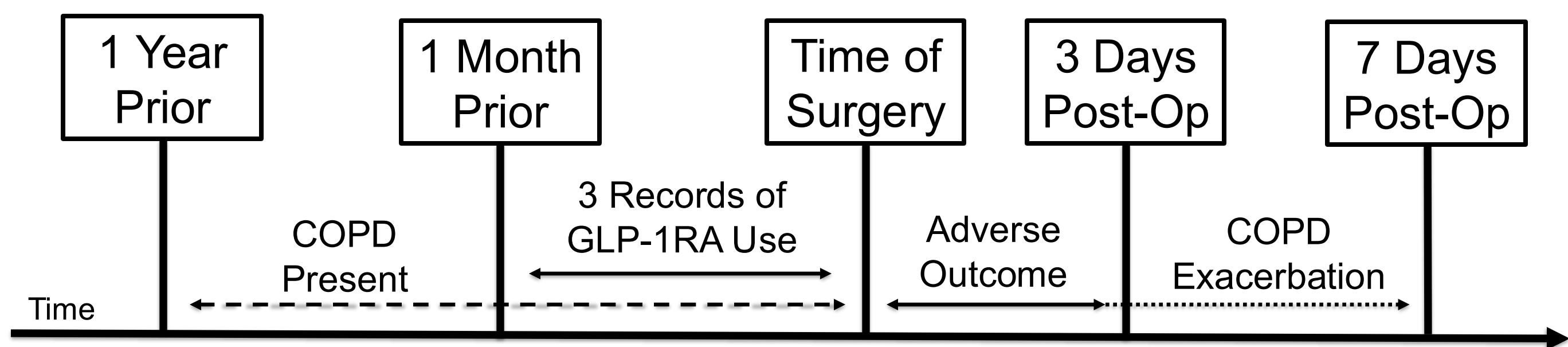
Aim

Evaluate if GLP-1RAs may reduce adverse perioperative outcomes in patients with COPD undergoing general anesthesia.

Materials & Methods

- Retrospective cohort study between 2015-2025.
- TriNetX US nationwide de-identified database using CPT-9/ICD-10.
- Control Cohort (No GLP-1RA): COPD with no history of GLP-1RA use.
- Propensity Score Matching: Demographic and comorbidities such as cardiovascular disease, diabetes mellitus, smoking, and exposure to other glucose lowering agents
- Statistical Analysis for Odds Ratio (OR) with 95% Confidence Interval (95% CI) and p-value ($p \leq 0.05$) were conducted through TriNetX *scikit-learn* package and R (v4.5.1) Software.

Figure 1: Timeline for Inclusion Criteria in GLP-1 Users with COPD

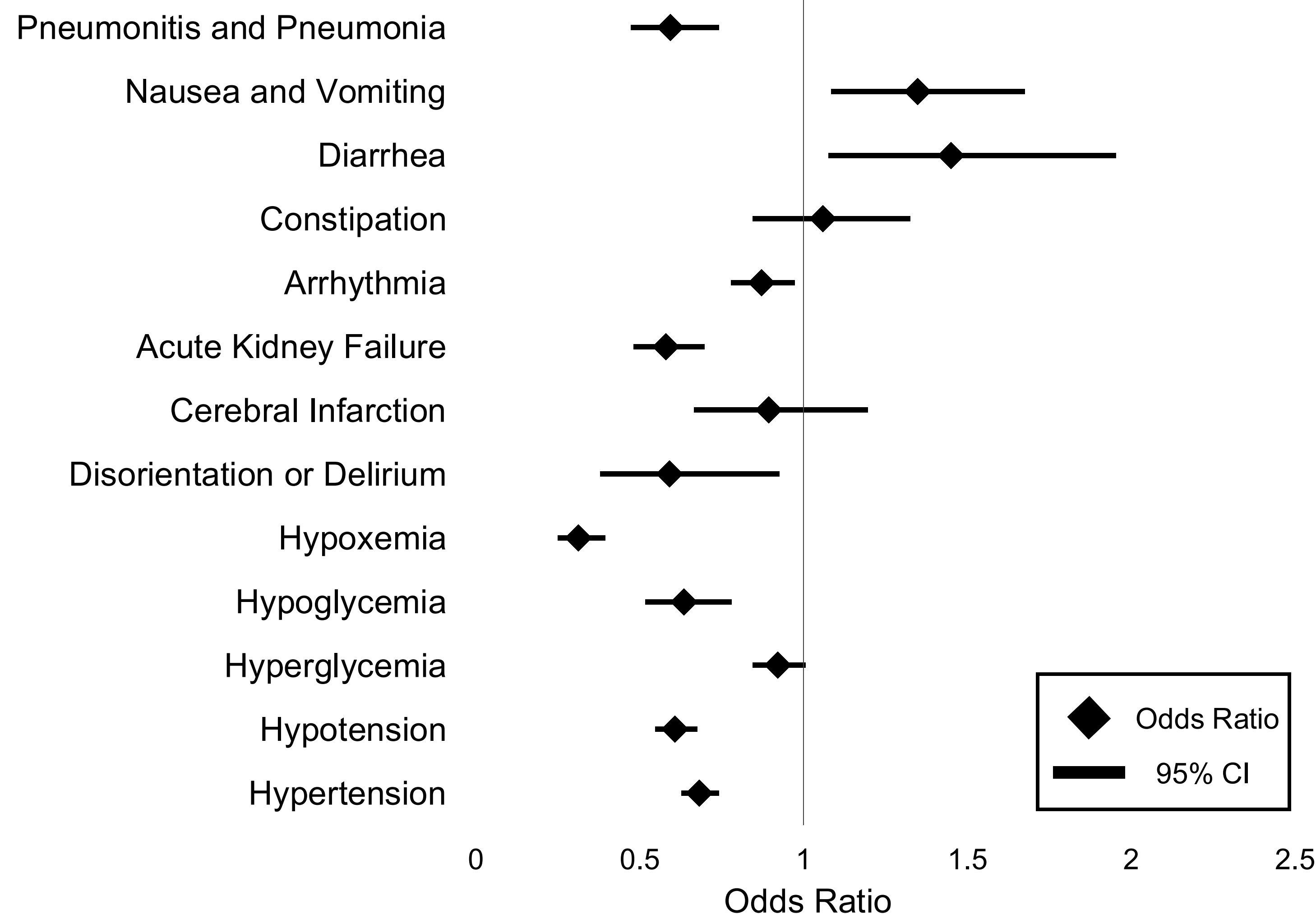


Results

Table 1: Baseline Characteristics

	Number of Matched Patients (%)	
	GLP-1RA (N=4,284)	NO GLP-1RA (N=4,284)
Demographics		
Age, mean (SD)	63.0 ± 9.9	63.1 ± 11.1
Sex, female	2,463 (57.50%)	2,425 (56.61%)
Ethnicity, Hispanic	226 (5.28%)	206 (4.81%)
Race, White	3,441 (80.32%)	3,440 (80.30%)
Race, Black	593 (13.84%)	609 (14.22%)
Race, Asian	18 (0.43%)	23 (0.537%)
Other Race	141 (3.29%)	143 (3.34%)
Abbreviated Comorbid Conditions		
Diabetes Mellitus	3,979 (92.88%)	4,020 (93.84%)
Ischemic Heart Disease	2,581 (60.25%)	2,620 (61.16%)
Asthma	2,105 (49.14%)	2,033 (47.45%)
Gastroesophageal Reflux Disease	3,095 (72.25%)	3,045 (71.08%)
Chronic Kidney Disease	1,683 (39.29%)	1,727 (40.31%)
Nicotine Dependence	2,196 (51.26%)	2,175 (50.77%)
Antihyperglycemic Agents	2,933 (68.46%)	2,935 (68.51%)

Figure 2: Odds of Adverse Outcome in GLP-1RA Users Versus Non-Users

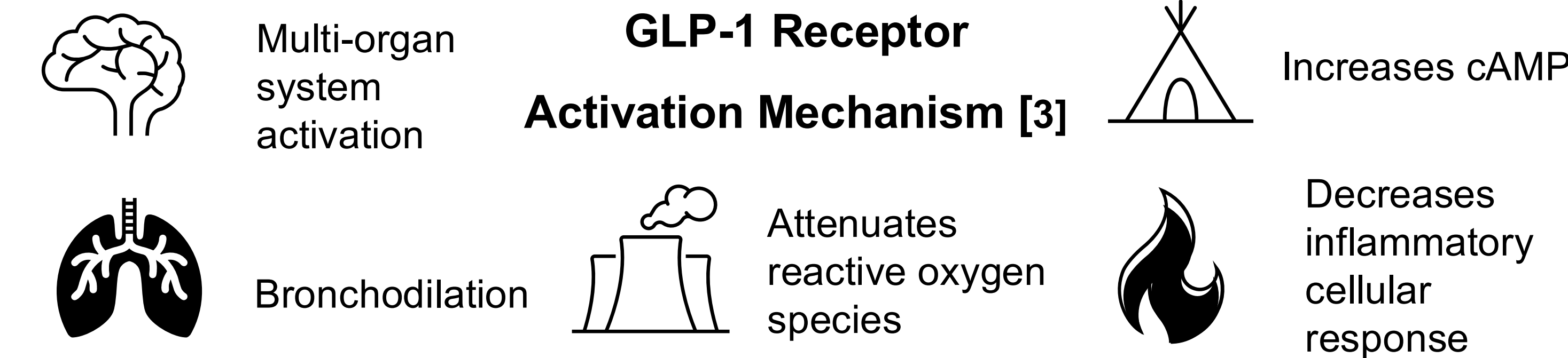


Results

Table 2: Postoperative COPD Exacerbations in GLP-1RA Users Versus Non-Users

	Total Matched Patients	GLP-1RA	NO GLP-1RA	OR (95% CI); P value
		65	124	0.517 (0.382, 0.700)
# with COPD Exacerbation				
Mean # Exacerbations (SD)	4284	1.231 ± 0.493	1.468 ± 1.024	0.0799

Discussion



Conclusions

- GLP-1RAs may confer protection against perioperative pneumonitis and COPD exacerbations.
- GLP-1RA use was associated with less cardiovascular, metabolic, and neurologic complications.
- Nausea and Vomiting precautions may be taken according to generalized GLP-1RA use.
- Clinical trials are warranted to further evaluate the role GLP-1RAs may play in optimizing perioperative management for patients with COPD.

References

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- Foer, D., Strasser, Z. H., Cui, J., Cahill, K. N., Boyce, J. A., Murphy, S. N., & Karlson, E. W. (2023). Association of GLP-1 Receptor Agonists with Chronic Obstructive Pulmonary Disease Exacerbations among Patients with Type 2 Diabetes. *American journal of respiratory and critical care medicine*, 208(10), 1088–1100. <https://doi.org/10.1164/rccm.202303-0491OC>.
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