

Moderate and severe COPD exacerbations lead to sustained impairment in health-related quality of life

Dr Shibing Yang¹, Jessica Weir², Mr Johan Dalén³, Ms Olivia Hughes⁴, Mr Alan Martin⁵, Mr Timothy Baker⁴, Ms Dhvani Shah⁴, Mr Steven Gould⁶

¹Global Real-World Evidence and Health Outcomes Research, GSK, Collegeville, PA, USA; ²UK Medical Affairs, GSK, London, UK; ³ICON plc, Stockholm, Sweden; ⁴ICON plc, Blue Bell, PA, USA; ⁵Global Real-World Evidence and Health Outcomes Research, GSK, London, UK; ⁶Global Medical Affairs, Specialty Care, GSK, London, UK

Background

- COPD substantially impairs patients' HRQoL, primarily through persistent dyspnoea and associated limitations in physical activity, while acute exacerbations further compromise daily functioning and overall wellbeing¹
- Patients with COPD and type 2 inflammation, as indicated by elevated BEC, experience more frequent and severe exacerbations^{2,3}
- Mepolizumab, a humanised monoclonal antibody targeting IL-5, is approved as add-on maintenance treatment for adults with uncontrolled COPD and an eosinophilic phenotype^{4,5}
- Assessing the HRQoL and utility impairment associated with COPD exacerbations may help to better characterise the patient burden of exacerbations



In patients with **COPD** with an **eosinophilic phenotype** who experience frequent exacerbations despite optimised inhaled therapy, prolonged decline in HRQoL occurs following exacerbations, highlighting the potential for **targeted treatments** that prevent exacerbations to provide critical, sustained clinical benefits

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Aims

To assess long-term HRQoL and utility impairment following moderate and severe exacerbations in patients with COPD with elevated BEC and frequent exacerbations despite optimised inhaled therapy

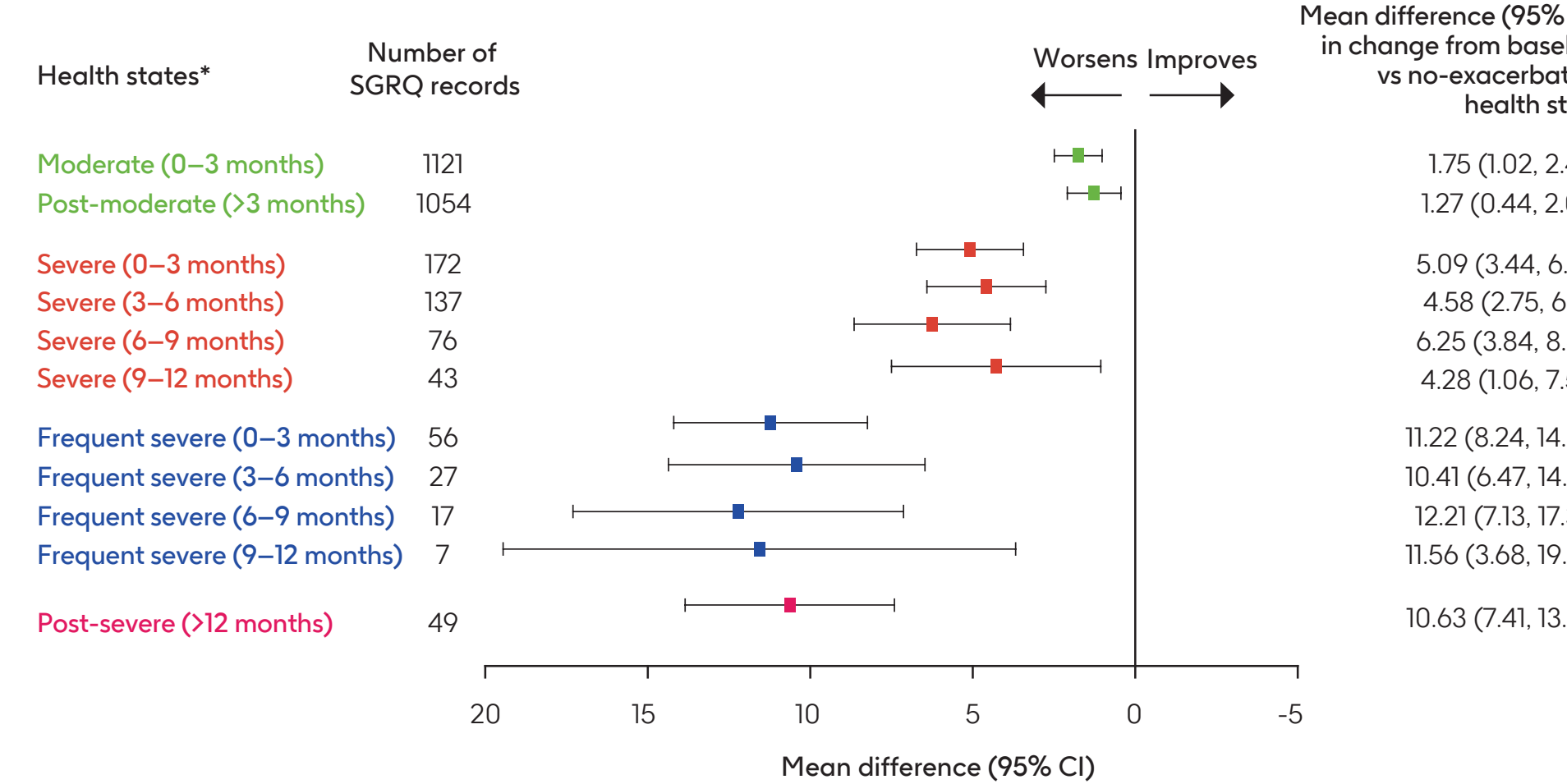
Results

Table 1: Baseline characteristics of included populations were broadly similar across all studies, although patients in IMPACT had slightly better lung function and HRQoL scores

	METREX (n=172)	METREO (n=170)	MATINEE (n=804)	ECLIPSE (n=135)	IMPACT (n=1676)	All patients (N=2957)
Female, n (%)	62 (36)	61 (36)	235 (31)	45 (33)	487 (29)	908 (31)
Age (years), mean (SD)	64.9 (8.8)	65.5 (8.9)	66.2 (8.0)	63.4 (6.9)	65.2 (8.4)	65.4 (8.3)
Screening BEC (cells/μL), geometric mean (logSD)	460 (0.407)	479 (0.394)	479 (0.388)	447 (0.350)	479 (0.420)	476 (0.406)
Smoking status, n (%)						
Never smoked	8 (5)	1 (<1)	0	0	0	9 (<1)
Current smoker	55 (32)	45 (26)	222 (28)	51 (38)	550 (33)	923 (31)
Former smoker	109 (63)	124 (73)	582 (72)	84 (62)	1126 (67)	2025 (68)
Moderate exacerbations in the previous 12 months, mean (SD)	2.0 (1.5)	2.2 (1.5)	2.0 (1.1)	1.9 (1.6)	1.6 (1.3)	1.8 (1.3)
Severe exacerbations in the previous 12 months, mean (SD)	0.6 (1.0)	0.5 (0.8)	0.3 (0.7)	0.6 (0.8)	0.4 (0.7)	0.4 (0.7)
Severity of airflow limitation,* n (%)						
GOLD 2: Moderate (FEV ₁ ≥50% to <80%)	63 (37)	71 (42)	349 (43)	38 (28)	861 (51)	1382 (47)
GOLD 3: Severe (FEV ₁ ≥30% to <50%)	93 (54)	71 (42)	340 (42)	73 (54)	619 (37)	1196 (40)
GOLD 4: Very severe (FEV ₁ <30%)	13 (8)	25 (15)	110 (14)	24 (18)	189 (11)	361 (12)
SGRQ total score						
Patients with assessment, n	167	169	780	128	1655	2899
mean (SD)	54.7 (16.8)	53.5 (16.9)	54.6 (17.8)	56.7 (18.4)	49.9 (17.3)	52.0 (17.6)
EQ-5D-3L total score						
Patients with assessment, n	163	165	785	N/A	1647	2760
mean (SD)	0.7 (0.1)	0.7 (0.1)	0.7 (0.1)		0.8 (0.1)	0.8 (0.1)
Treatment regimen						
Mepolizumab 100 mg + SoC	82 (48)	83 (49)	403 (50)	0	0	568 (19)
Dual inhaled therapy	0	0	0	0	1018 (61)	1018 (34)
Triple inhaled therapy	90 (52)	87 (51)	401 (50)	135 (100)	658 (39)	1371 (46)

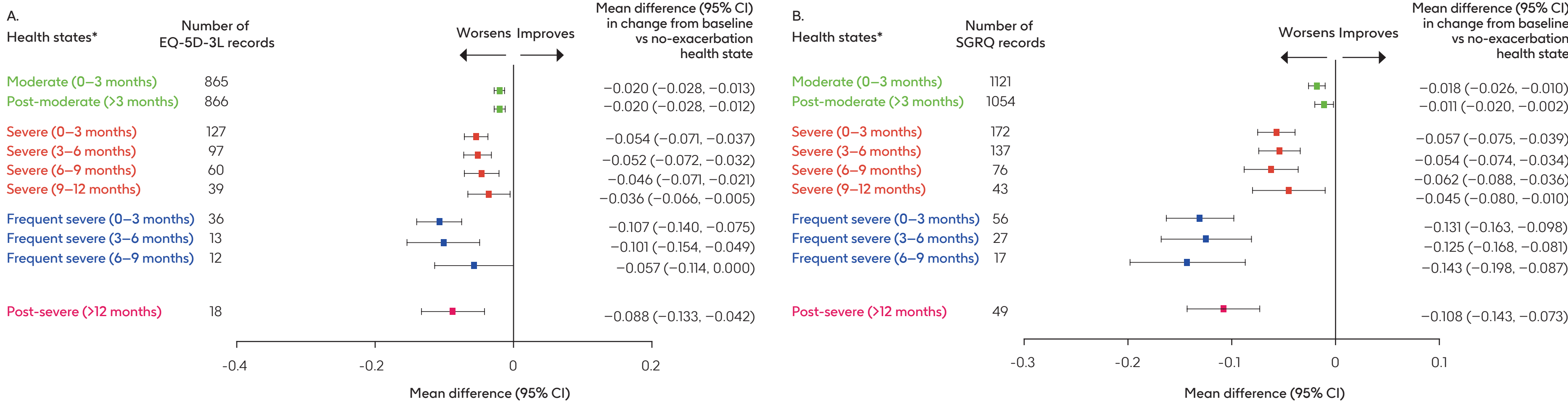
*The severity of airflow obstruction was assessed based on post-bronchodilator FEV₁ measurements at screening according to the GOLD guidelines for COPD

Figure 1: SGRQ scores worsened after moderate exacerbations, with greater and sustained impairment following severe exacerbations. The largest and most persistent SGRQ impairments occurred after frequent severe exacerbations



*Health states are defined by the severity and frequency of the most recent exacerbation within each 3-month patient-period; estimates of change in HRQoL associated with model health states were derived using a random coefficient model

Figure 2: Severe and frequent severe exacerbations were associated with greater EQ-5D-3L disutility than moderate exacerbations, but the impact of each severe exacerbation waned over the 12-month follow-up period (A). Similar patterns were observed for EQ-5D utility values derived from SGRQ scores (B)



Conclusions

This pooled analysis of individual patient data from the METREO, METREX, MATINEE, ECLIPSE and IMPACT studies further describes the **disease trajectory** following moderate and severe exacerbations among **patients with COPD, elevated BEC, and frequent exacerbations** despite optimised inhaled therapy

Patients experienced **prolonged HRQoL reduction following exacerbations**, with greater impact from severe exacerbations

Targeted biologics proven to reduce exacerbations may provide **therapeutic benefits** beyond reducing the risk of the next exacerbation, given the prolonged negative impact of exacerbations on HRQoL

Abbreviations

BEC, blood eosinophil count; CI, confidence interval; COPD, chronic obstructive pulmonary disease; EQ-5D, EuroQol 5-Dimension; EQ-5D-3L, EuroQol 5-Dimension 3-Level questionnaire; FEV₁, forced expiratory volume in 1 second; FF, fluticasone furoate; GOLD, Global Initiative for Chronic Obstructive Lung Disease; HRQoL, health-related quality of life; ICS, inhaled corticosteroid; IL-5, interleukin-5; LABA, long-acting β₂-agonist; LAMA, long-acting muscarinic antagonist; N/A, not available; RCT, randomised controlled trial; SC, subcutaneous; SCS, systemic corticosteroid; SD, standard deviation; SGRQ, St George's Respiratory Questionnaire; SoC, standard of care; UMEC, umecidinium; VI, vilanterol

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Acknowledgements

This analysis was funded by GSK (117106/NCT02105948; 117113/NCT02105961; 208657/NCT04133909; SCO104960/NCT00292552; 116855/NCT02164513). Editorial support (in the form of writing assistance, including preparation of the draft poster under the direction and guidance of the authors, collating and incorporating authors' comments for each draft, assembling tables and figures, grammatical editing and referencing) was provided by Sarah Meadows, MRes, at Fishawack Indicia Ltd, UK, part of Avalere Health, and was funded by GSK.

Disclosures

SY, JW, AM and SG are employed by GSK. JD, OH, TB and DS are employees of ICON plc, which received payment from GSK to conduct this study.