

# Dupilumab improves chronic rhinosinusitis with nasal polyps outcome measures regardless of baseline peak nasal inspiratory flow

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## BACKGROUND

- Limited nasal airflow is recognized as a high burden of disease for patients with chronic rhinosinusitis with nasal polyps (CRSwNP)
- Nasal airflow can be measured using peak nasal inspiratory flow (PNIF), rhinometry and 4-phase rhinomanometry
  - PNIF, a validated tool to measure nasal patency, has been shown to better correlate with nasal congestion/obstruction and overall sinonasal symptoms<sup>1,2</sup>
  - PNIF > 120 L/min has been established as the threshold for normal nasal airflow<sup>3</sup>
- In the Phase 3 SINUS-24 (NCT02912468) and SINUS-52 (NCT02898454) studies, dupilumab significantly improved objective and patient-reported outcomes in patients with uncontrolled CRSwNP<sup>4,5</sup>

## OBJECTIVE

- This post-hoc analysis evaluated the effect of dupilumab on PNIF and other outcome measures in patients with CRSwNP and limited (< 120 L/min) or normal (≥ 120 L/min) baseline PNIF in the SINUS-24 and SINUS-52 studies

## METHODS

- SINUS-24 and SINUS-52 study details have been previously published elsewhere<sup>4</sup>
- Patients were treated with dupilumab 300 mg or placebo every 2 weeks for 24 (SINUS-24) or 52 (SINUS-52) weeks
- Change in PNIF and PNIF response (minimum clinically important difference of ≥ 20 L/min)<sup>6</sup> were analyzed at 24 weeks in pooled SINUS-24 and SINUS-52 populations
  - PNIF was assessed with PNIF meters – morning and evening inspiration through the nasal cavity (L/min) through to Week 24
- Change in nasal polyp score (NPS), nasal congestion/obstruction (NC), loss of smell, 22-item Sino-Nasal Outcome Test (SNOT-22), University of Pennsylvania Smell Test (UPSIT) and Lund-Mackay scores from baseline were measured at Week 24

## RESULTS

- Of 724 patients in the pooled intention-to-treat population, 76% had PNIF < 120 L/min at baseline
- The PNIF < 120 L/min subgroup had a lower proportion of males, lower baseline UPSIT and higher baseline SNOT-22 than the PNIF ≥ 120 L/min subgroup (Table)

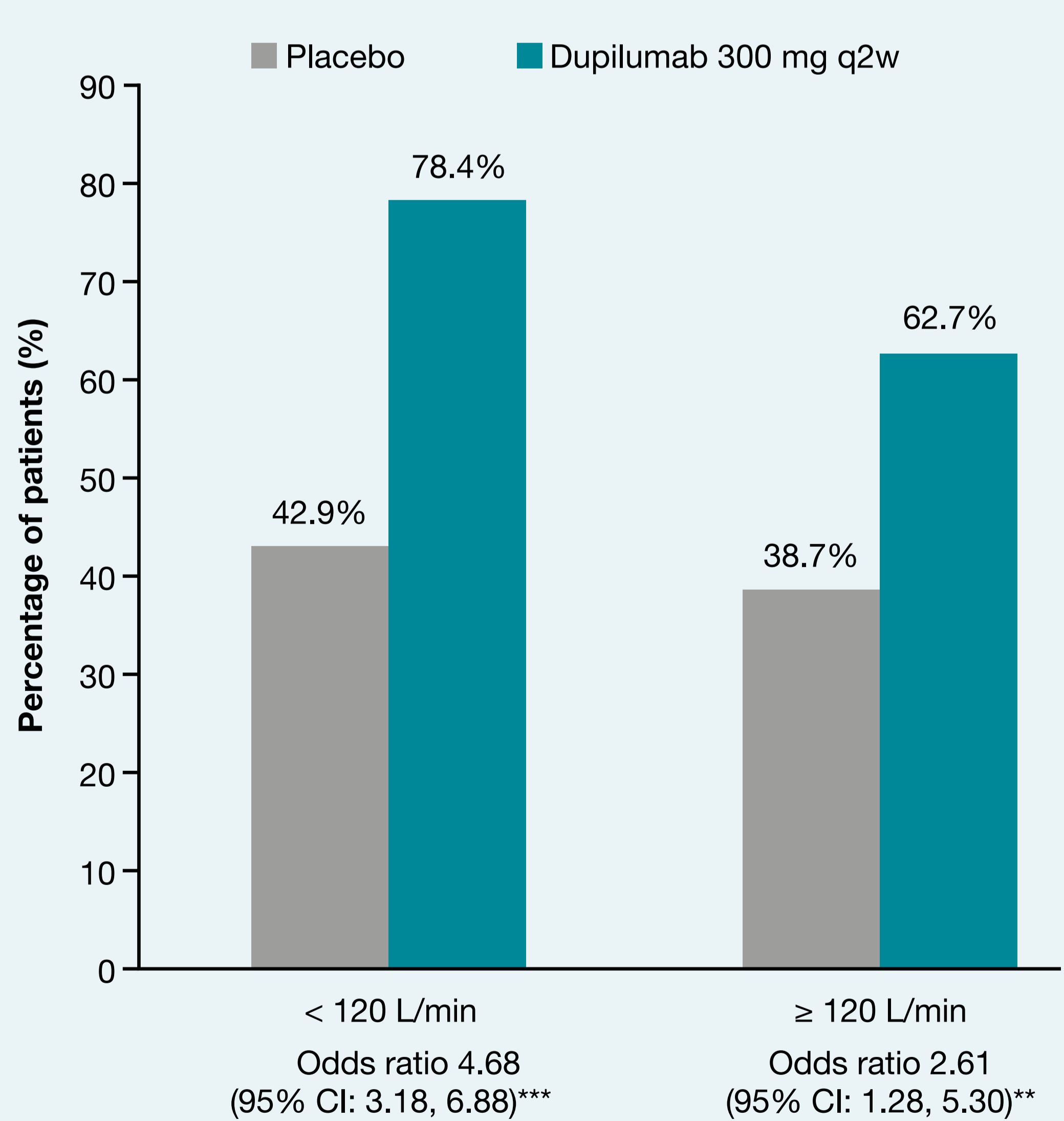
### Demographics and baseline characteristics<sup>a</sup>

	PNIF < 120 L/min		PNIF ≥ 120 L/min	
	Placebo (n = 224)	Dupilumab (n = 328)	Placebo (n = 62)	Dupilumab (n = 110)
Age, years	51.7 (13.0)	52.2 (12.9)	49.9 (12.6)	49.2 (12.4)
Male, n (%)	121 (54)	187 (57)	44 (71)	85 (77)
Prior sinonasal surgery, n (%)	147 (66)	199 (61)	40 (65)	73 (66)
PNIF	62.5 (31.7)	62.6 (32.1)	169.2 (44.7)	163.9 (41.9)
LoS	2.8 (0.48)	2.8 (0.50)	2.6 (0.61)	2.7 (0.64)
NPS	6.1 (1.25)	6.2 (1.25)	5.3 (1.10)	5.4 (1.03)
NC	2.5 (0.54)	2.5 (0.57)	2.3 (0.55)	2.2 (0.64)
SNOT-22	54.5 (21.37)	52.5 (19.54)	44.3 (18.19)	42.7 (20.99)
LMK-CT	18.9 (3.97)	18.3 (3.96)	17.1 (4.31)	18.1 (4.26)
UPSIT	13.4 (7.57)	13.8 (8.04)	16.7 (10.19)	14.2 (8.53)

<sup>a</sup>All data mean (SD) unless stated. LMK-CT, Lund-Mackay computed tomography; LoS, loss of smell; NC, nasal congestion; NPS, nasal polyp score; PNIF, peak nasal inspiratory flow; SD, standard deviation; SNOT-22, 22-item Sino-Nasal Outcome Test; UPSIT, University of Pennsylvania Smell Identification Test.

- At Week 24, dupilumab improved PNIF in both subgroups, and increased the likelihood of achieving a PNIF response vs placebo (Figure 1)

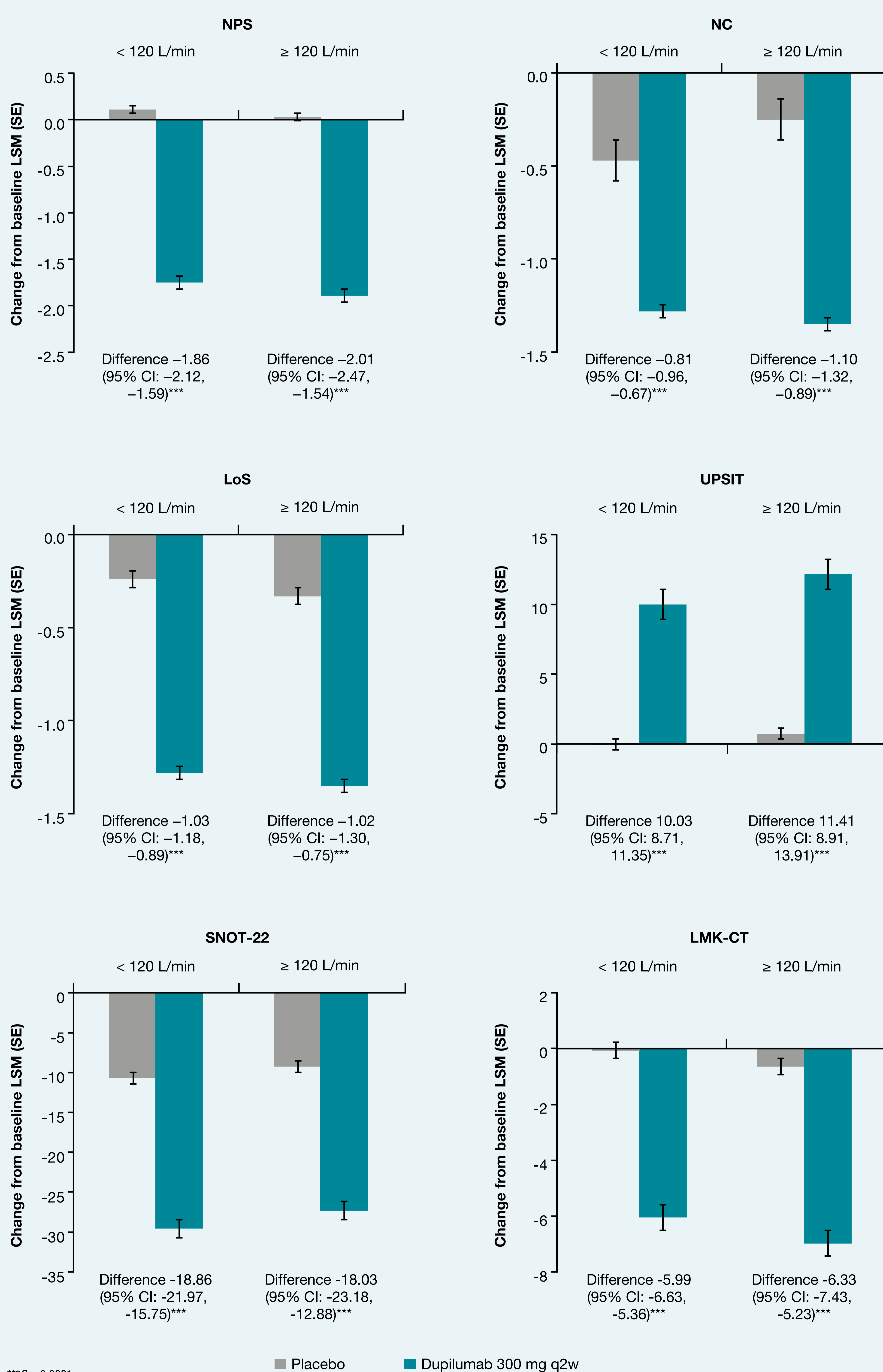
Figure 1. PNIF response at Week 24



\*\*\*P < 0.0001. \*\*P < 0.01. CI, confidence interval; PNIF, peak nasal inspiratory flow; q2w, every 2 weeks.

- Dupilumab significantly improved CRSwNP outcome measures in patients with normal and limited baseline PNIF (Figure 2)

Figure 2. CRSwNP outcomes for patients with normal and limited baseline PNIF



\*\*\*P < 0.0001. CI, confidence interval; LMK-CT, Lund-Mackay computed tomography; LoS, loss of smell; LSM, least squares mean; NC, nasal congestion; NPS, nasal polyp score; PNIF, peak nasal inspiratory flow; q2w, every 2 weeks; SE, standard error; SNOT-22, 22-item Sino-Nasal Outcome Test; UPSIT, University of Pennsylvania Smell Identification Test.

## CONCLUSIONS

- Most patients with severe CRSwNP in the SINUS populations had impaired nasal airflow at baseline
- Regardless of baseline PNIF, dupilumab improved PNIF, increased the proportion of responders with clinically meaningful improvement in PNIF, and improved CRSwNP outcome measures vs placebo