

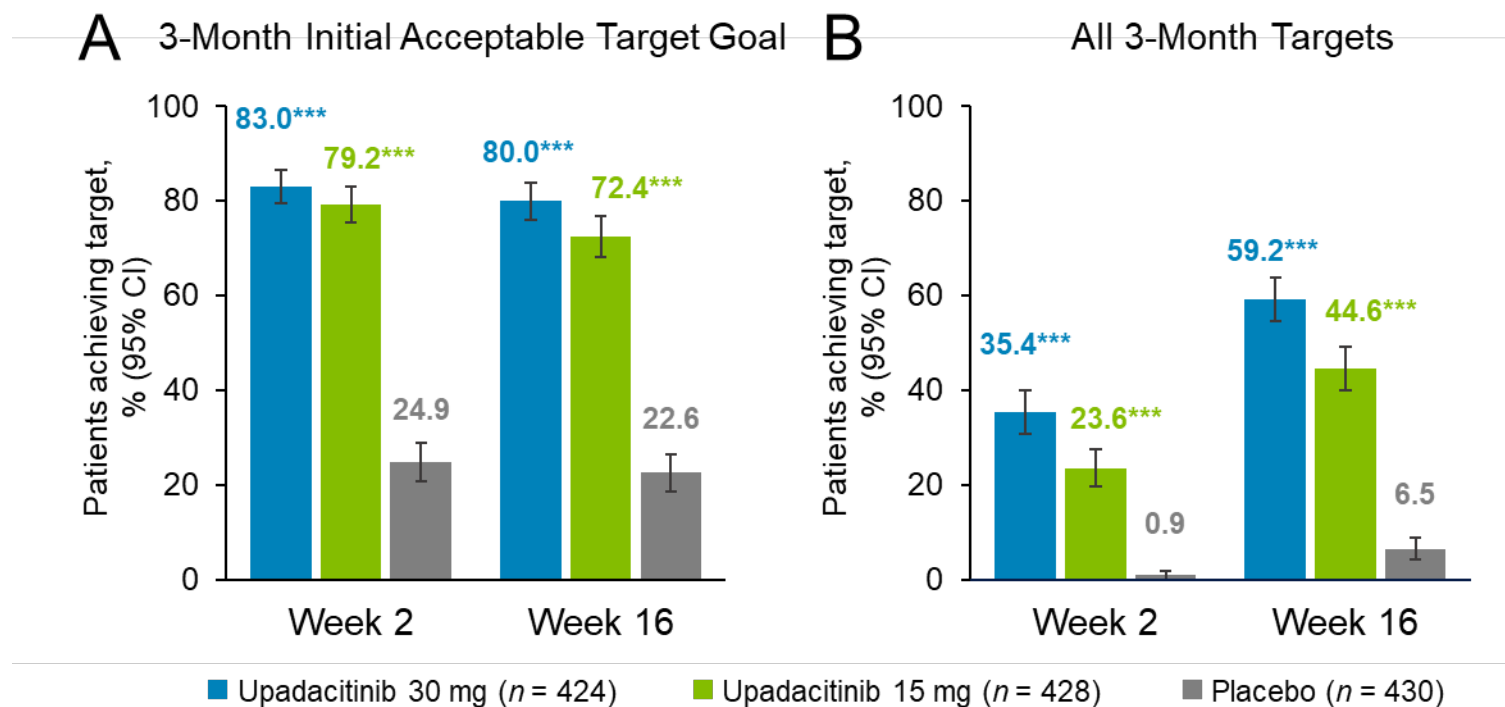
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**Fig. S1. Proportion of patients achieving 3-month targets over time (NRI-NC).**

NRI-NC: nonresponder imputation with no special handling for data missing owing to COVID-19.

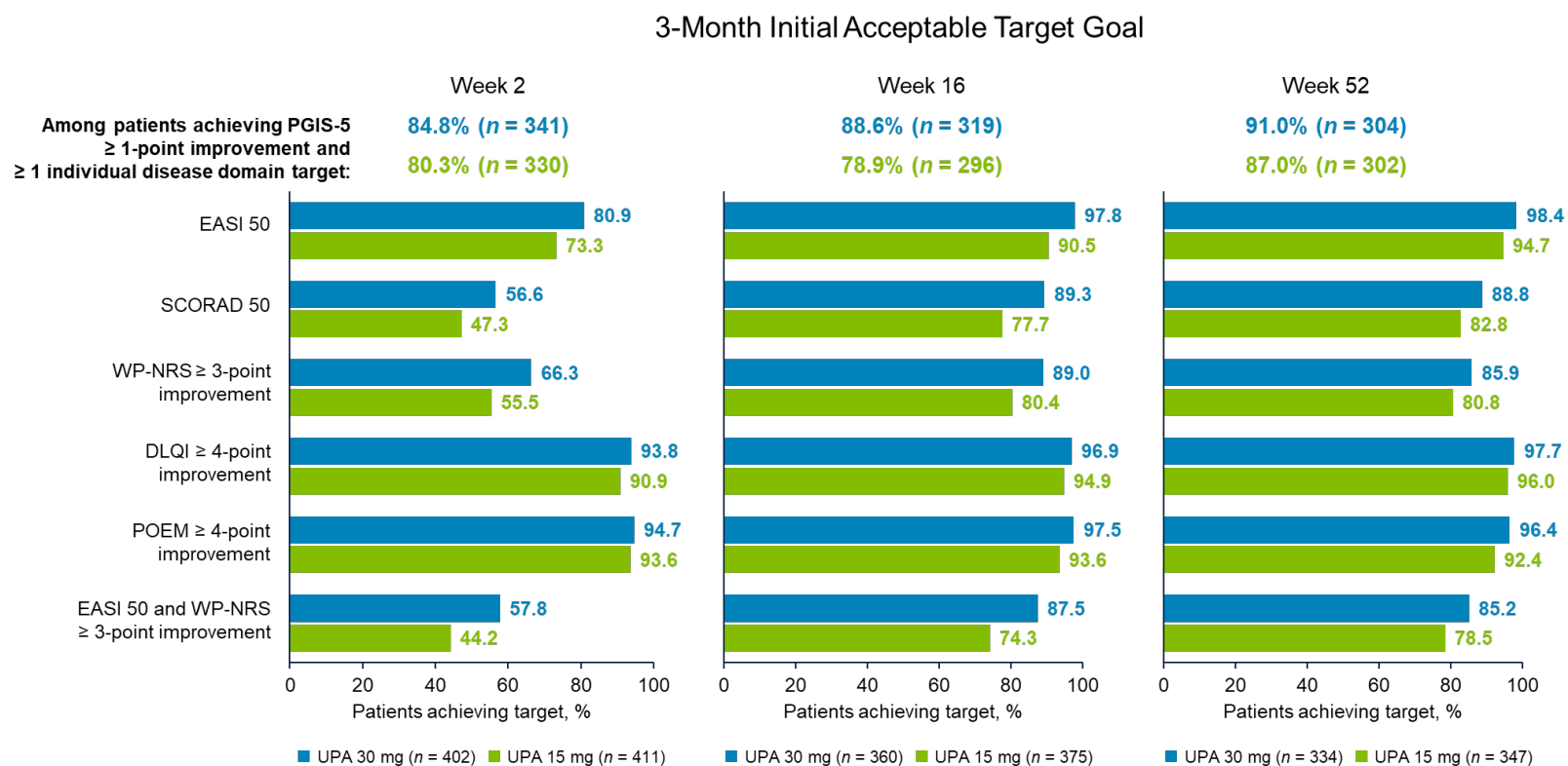
Data presented for patients achieving the 3-month initial acceptable target goal (A) and all 6 individual 3-month targets (B).

\*\*\* nominal  $p < 0.001$  vs placebo.



**Fig. S2. Proportion of patients achieving  $\geq 1$ -point improvement in PGIS-5 and any individual disease domain targets for the 3-month initial acceptable target goal (OC).**

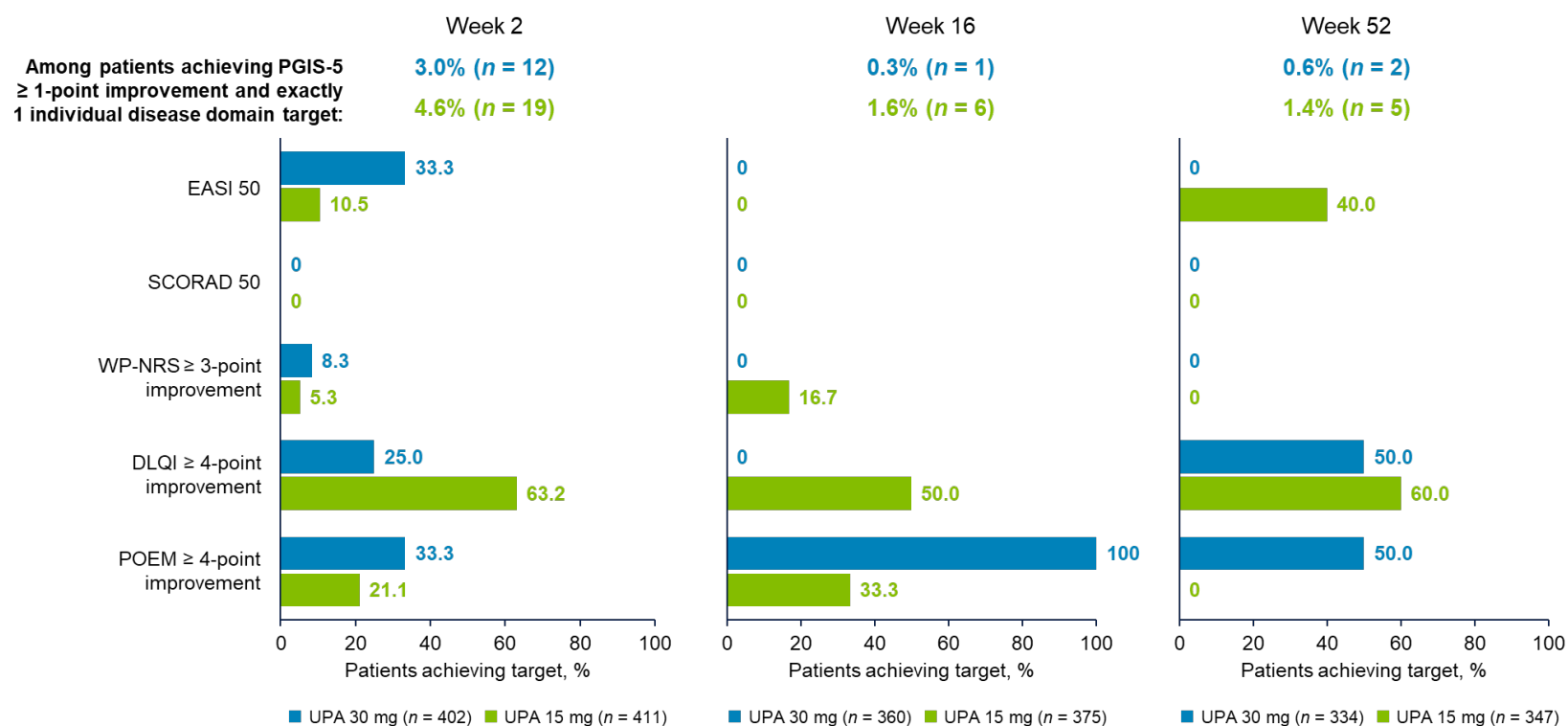
DLQI: Dermatology Life Quality Index; EASI 50:  $\geq 50\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 50:  $\geq 50\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.



**Fig. S3. Proportion of patients achieving  $\geq 1$ -point improvement in PGIS-5 and exactly 1 individual disease domain target for the 3-month initial acceptable target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 50:  $\geq 50\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 50:  $\geq 50\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

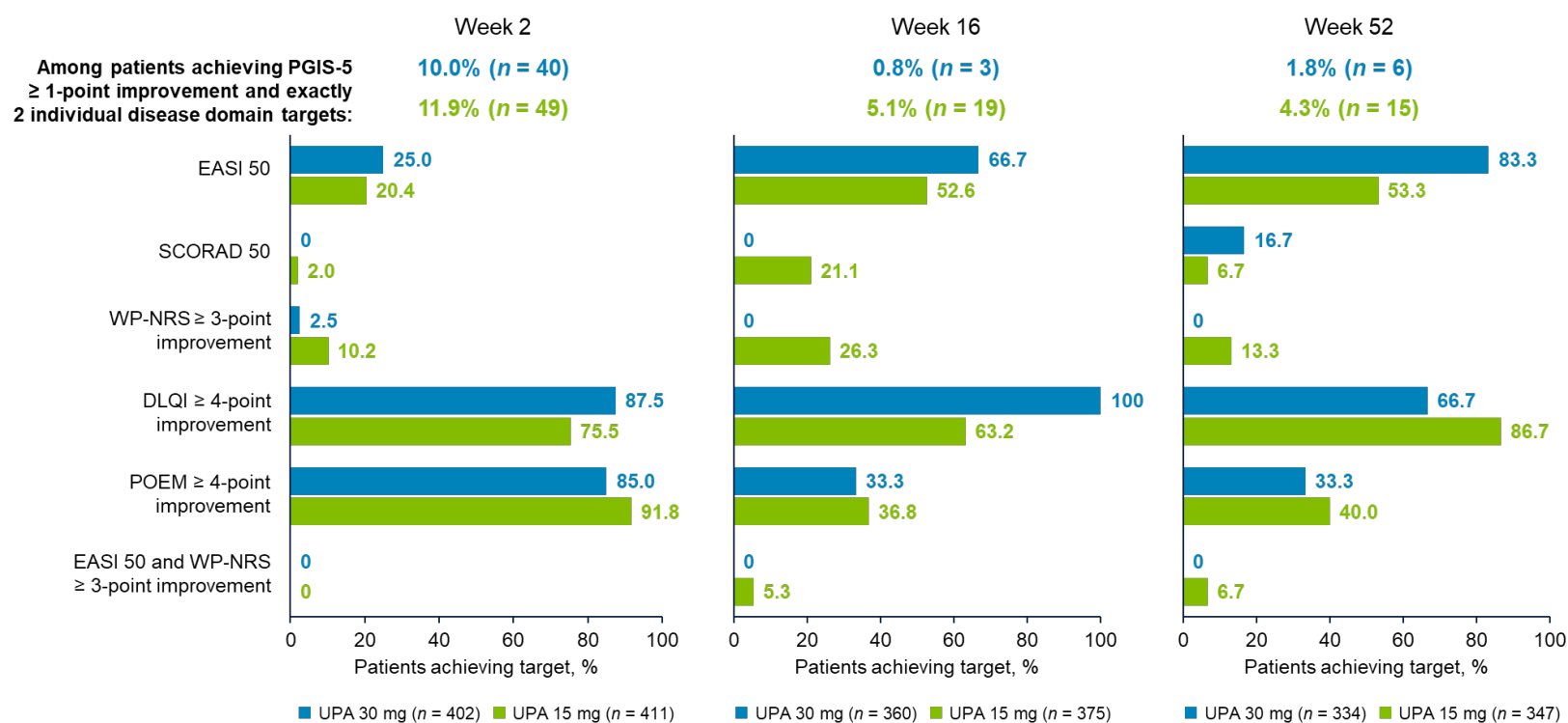
### 3-Month Initial Acceptable Target Goal



**Fig. S4. Proportion of patients achieving  $\geq 1$ -point improvement in PGIS-5 and exactly 2 individual disease domain targets for the 3-month initial acceptable target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 50:  $\geq 50\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 50:  $\geq 50\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

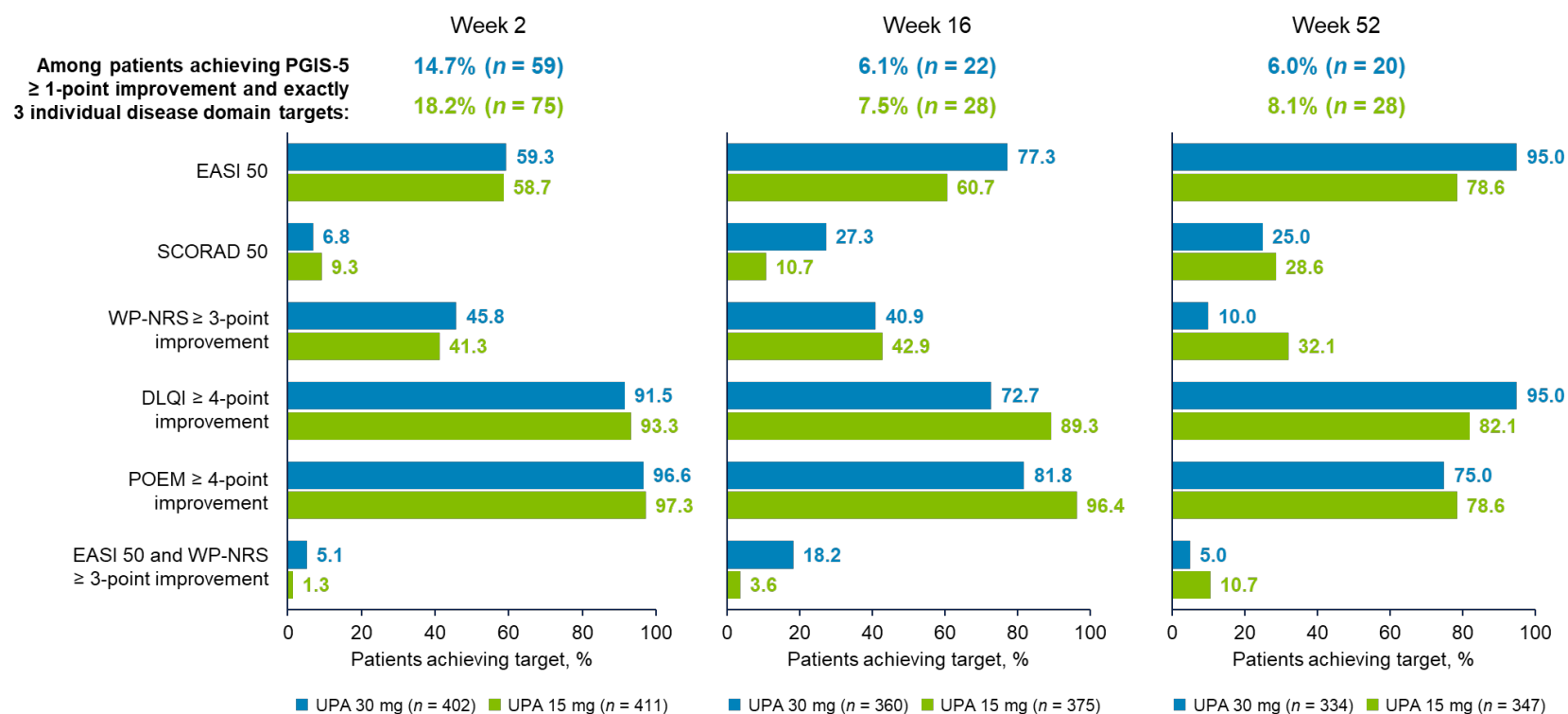
### 3-Month Initial Acceptable Target Goal



**Fig. S5. Proportion of patients achieving  $\geq 1$ -point improvement in PGIS-5 and exactly 3 individual disease domain targets for the 3-month initial acceptable target goal (OC).**

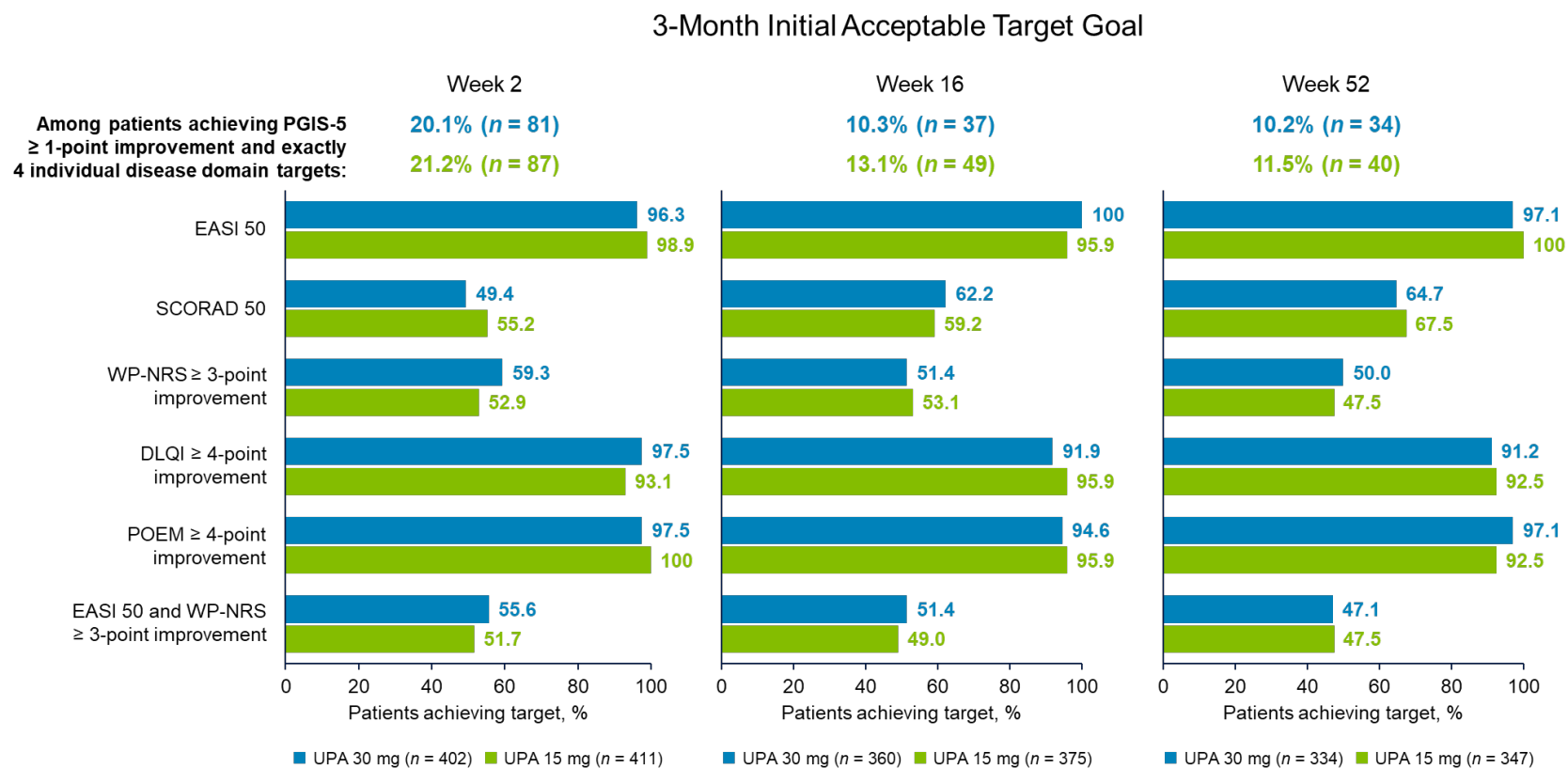
DLQI: Dermatology Life Quality Index; EASI 50:  $\geq 50\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient Oriented Eczema Measure; SCORAD 50:  $\geq 50\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

### 3-Month Initial Acceptable Target Goal



**Fig. S6. Proportion of patients achieving  $\geq 1$ -point improvement in PGIS-5 and exactly 4 individual disease domain targets for the 3-month initial acceptable target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 50:  $\geq 50\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 50:  $\geq 50\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

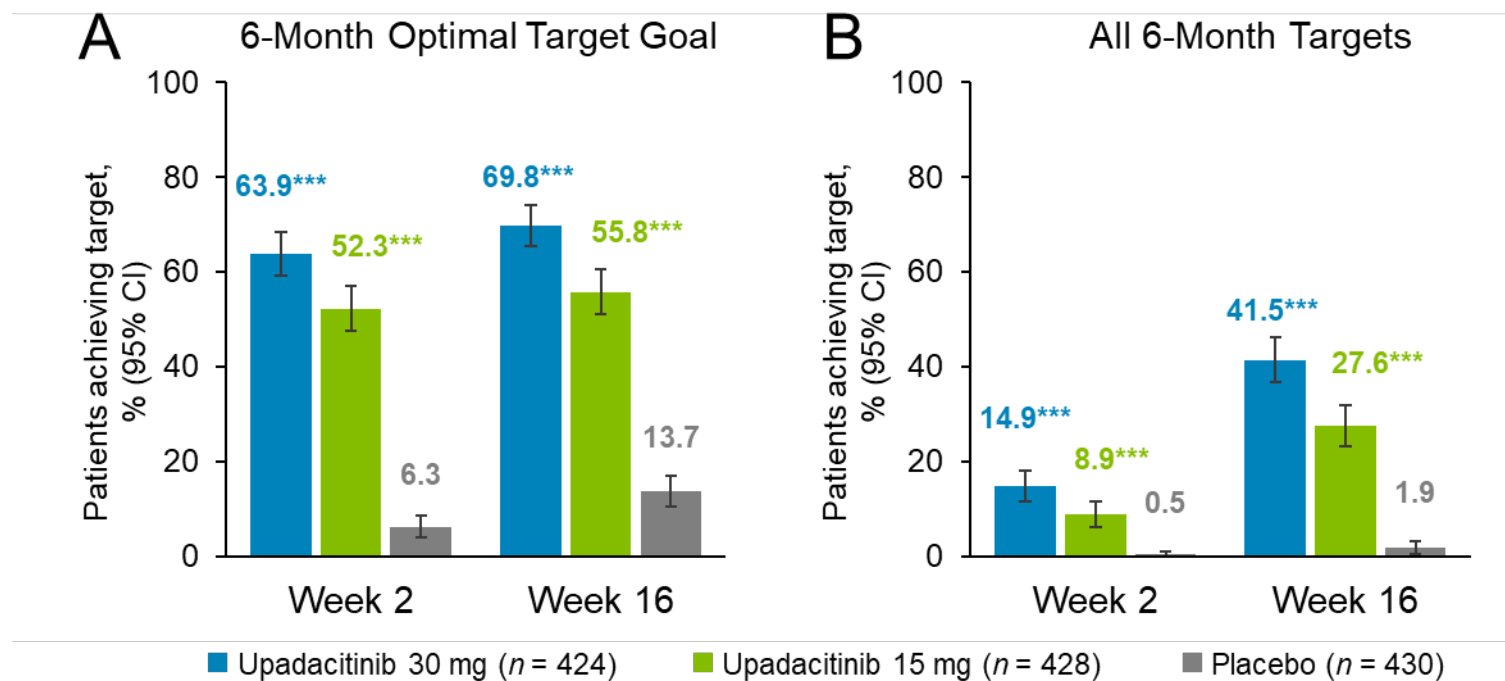


**Fig. S7. Proportion of patients achieving 6-month targets over time (NRI-NC).**

NRI-NC: nonresponder imputation with no special handling for data missing owing to COVID-19.

Data presented for patients achieving the 6-month optimal target goal (A) and all 6 individual 6-month targets (B).

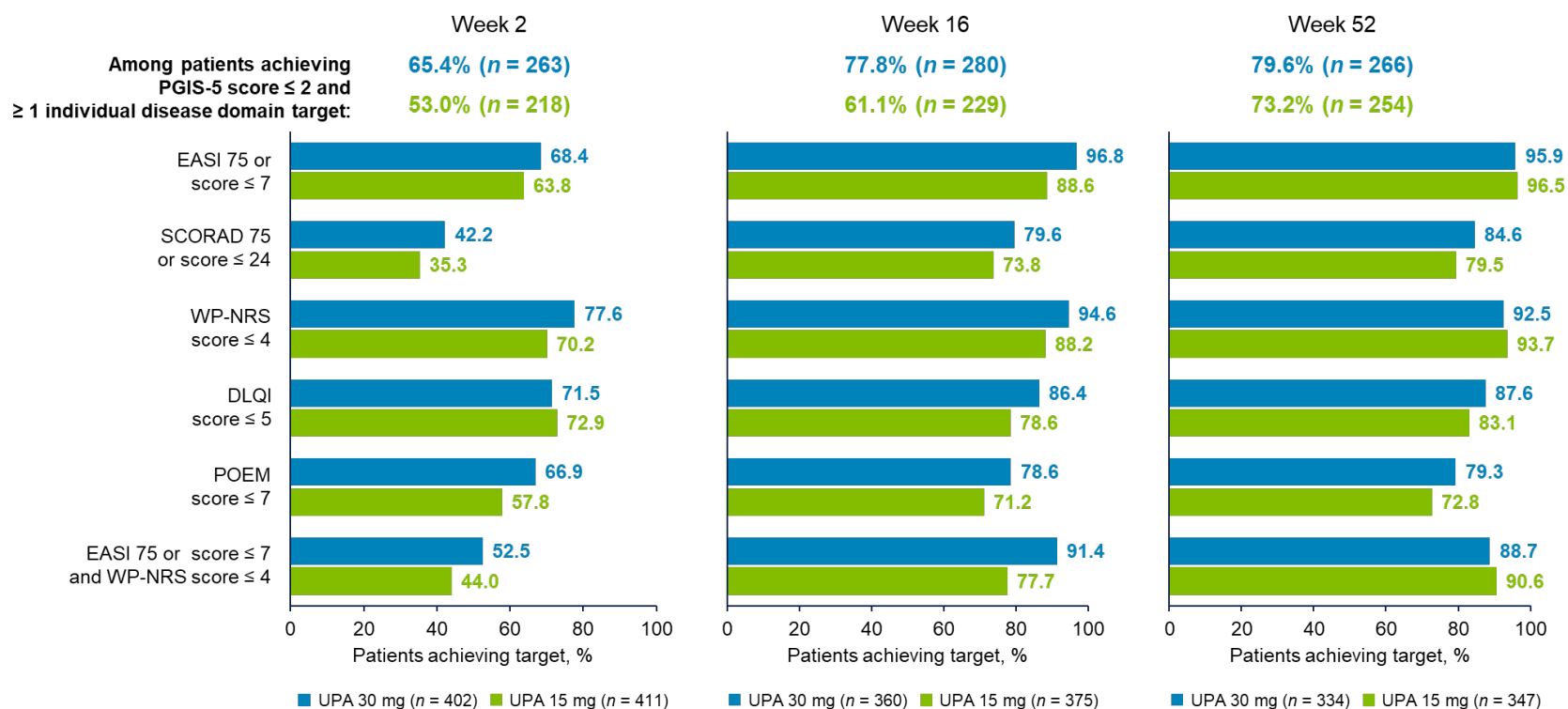
\*\*\* nominal  $p < 0.001$  vs placebo.



**Fig. S8. Proportion of patients achieving PGIS-5 score  $\leq 2$  and any individual disease domain targets for the 6-month optimal target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 75:  $\geq 75\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 75:  $\geq 75\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

6-Month Optimal Goal

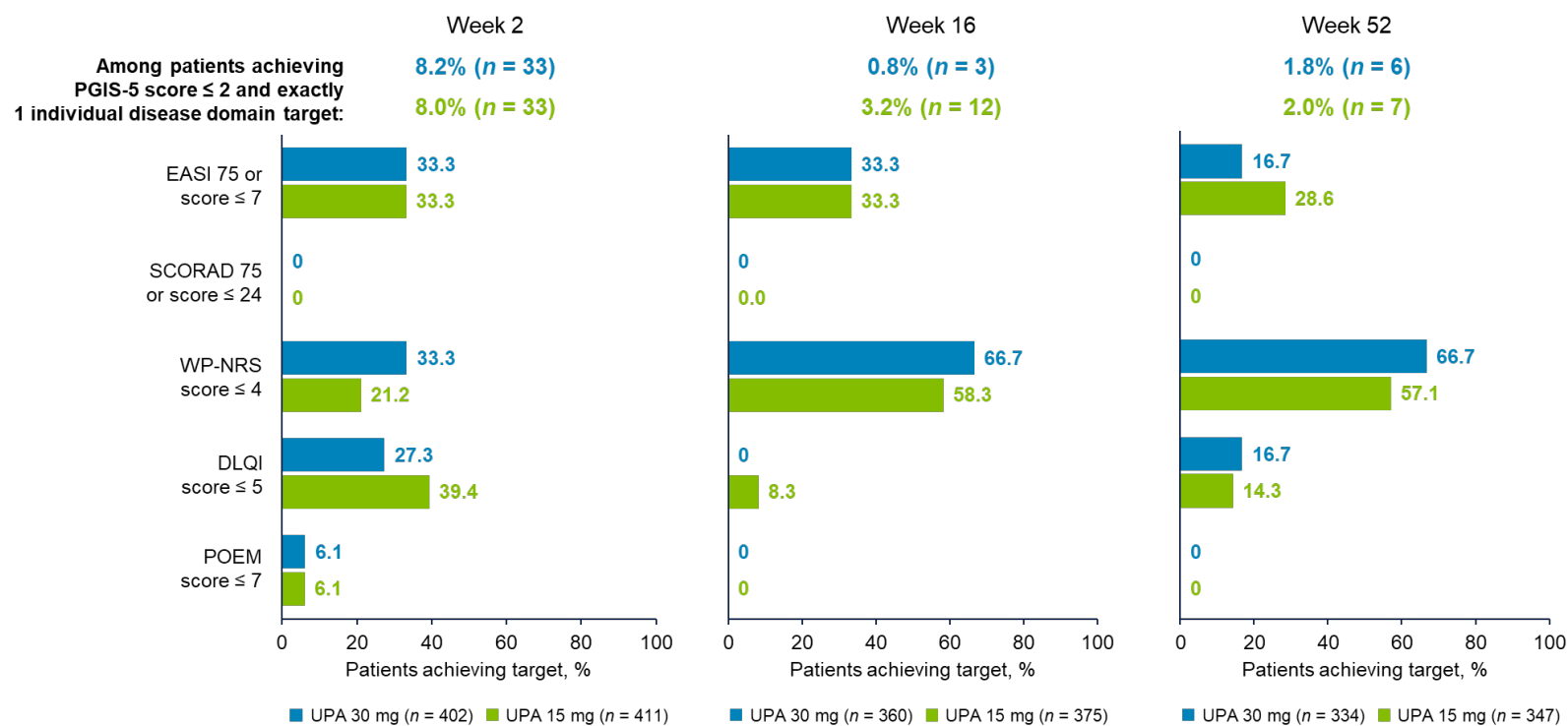




**Fig. S9. Proportion of patients achieving PGIS-5 Score  $\leq 2$  and exactly 1 individual disease domain target for the 6-month optimal target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 75:  $\geq 75\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 75:  $\geq 75\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

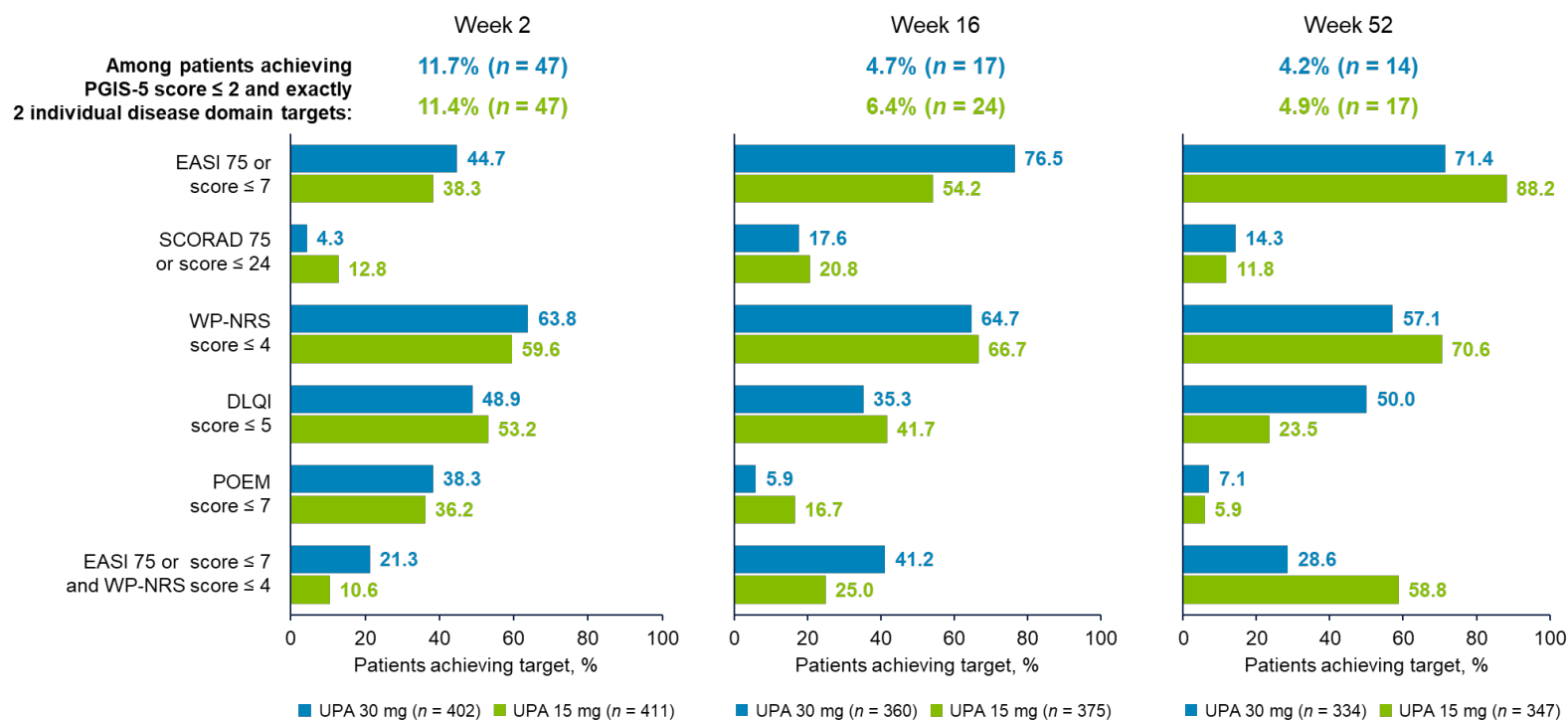
6-Month Optimal Goal



**Fig. S10. Proportion of patients achieving PGIS-5 score  $\leq 2$  and exactly 2 individual disease domain targets for the 6-month optimal target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 75:  $\geq 75\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 75:  $\geq 75\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

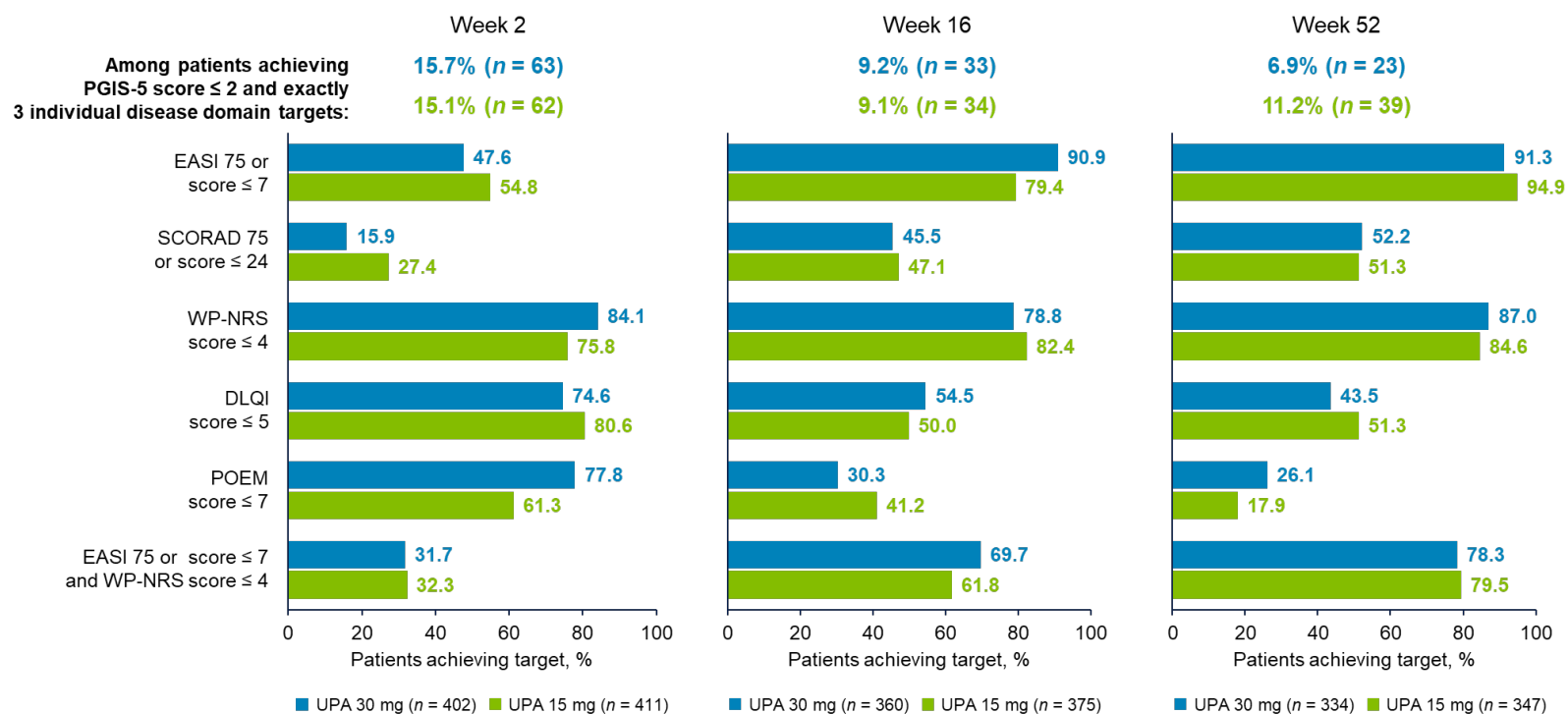
6-Month Optimal Goal



**Fig. S11. Proportion of patients achieving PGIS-5 score  $\leq 2$  and exactly 3 individual disease domain targets for the 6-month optimal target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 75:  $\geq 75\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 75:  $\geq 75\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

6-Month Optimal Goal



**Fig. S12. Proportion of patients achieving PGIS-5 score  $\leq 2$  and exactly 4 individual disease domain targets for the 6-month optimal target goal (OC).**

DLQI: Dermatology Life Quality Index; EASI 75:  $\geq 75\%$  improvement in Eczema Area and Severity Index; OC: observed cases; PGIS-5: Patient Global Impression of Severity 5-point scale; POEM: Patient-Oriented Eczema Measure; SCORAD 75:  $\geq 75\%$  improvement in SCORing of Atopic Dermatitis; UPA: upadacitinib; WP-NRS: Worst Pruritus Numerical Rating Scale.

6-Month Optimal Goal

