



Background

“Nonadherence can account for up to 50% of treatment failures, around 125,000 deaths, and up to 25% of hospitalizations each year in the United States.”¹

Clinical support via independent communication modes, such as telephonic² or digital³, can optimize adherence. We sought to understand the adherence impact when patients were provided multi-modal engagement opportunities for clinical support in a pilot program.

Smartphone intervention leads to an increase in medication adherence⁴

Objective

To quantify the adherence impact of patient engagement via one or more medication management solutions including telehealth clinical education and coaching and/or smart sharps device with companion digital application.

Methods

STUDY DESIGN: Observational cohort with lead-in enrollment methodology

INCLUSION CRITERIA:

- Patients 18-89 years
- Medication (dupilumab) first dispensed between 7/1/23 and 12/31/2023
- Eligible to enroll in multi-modal clinical support pilot program

CLASSIFICATION:

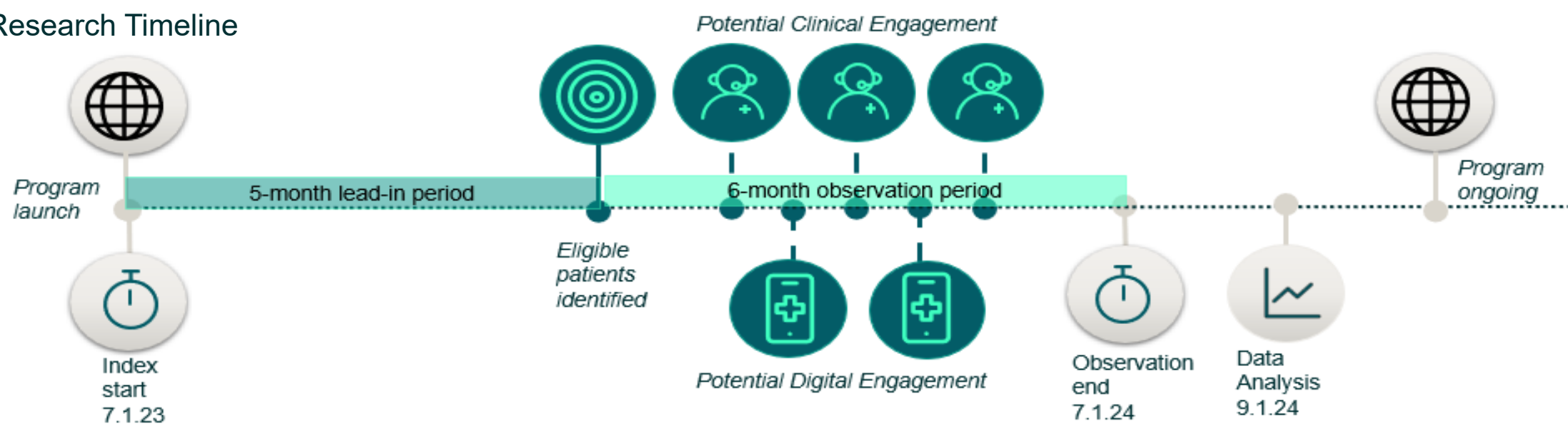
Engagement in either one or both adherence support modes was measured over the first 6 months of treatment, and patients were classified into 3 respective cohorts:

1. Unengaged = did not participate in either offering
2. Moderately engaged = participated in either telephonic or digital offering
3. Maximally engaged = participated in both available offerings

ANALYSIS:

- 6-month proportion of days covered (PDC) was measured and compared across cohorts.
- Bivariate comparisons were made with Student’s t-test, ANOVA, and chi-square tests. Multi variable linear regression was used to measure impact of the program on PDC controlling for age and gender of patients.

Figure 1: Research Timeline



Results

- In the lead-in period, 14,552 eligible patients started therapy.
- Patient behavior was observed for 6 months after treatment initiation.
- Patients were classified into 3 cohorts based on their level of engagement.

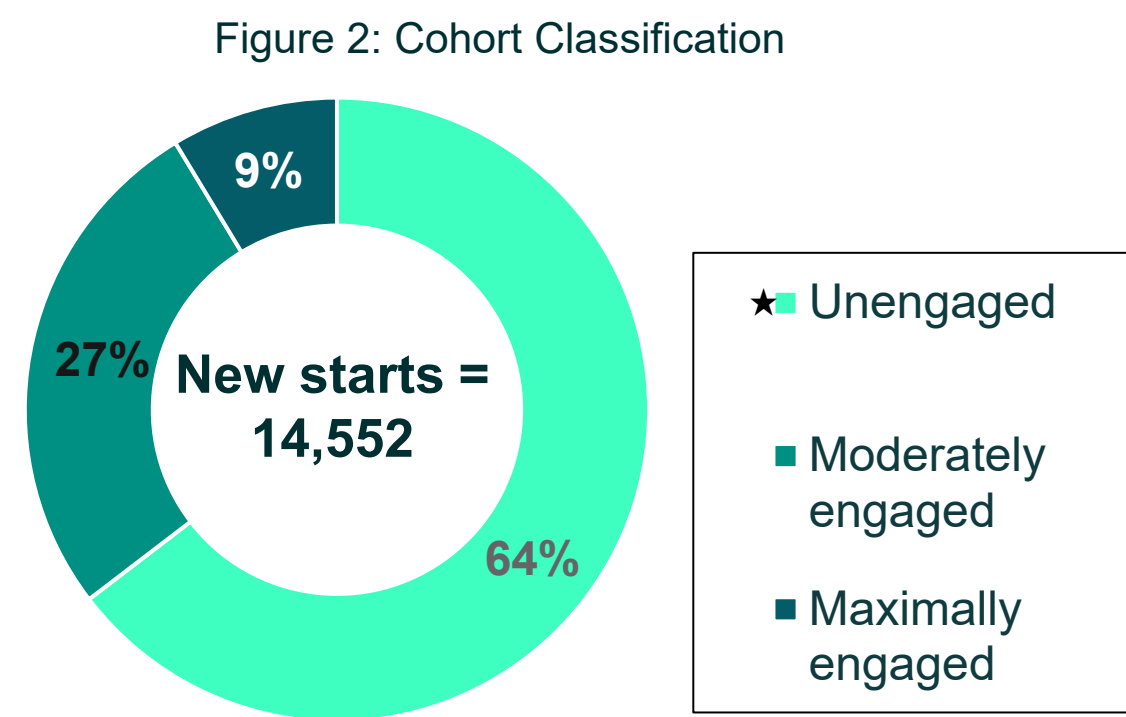


Table 1: Cohort Demographics

Cohort Description	Mean Age (years)	Std. Dev.	Male Gender (%)	P-value
Unengaged (n = 9402)	41.94	15.16	45.6	<0.0001
Moderately Engaged (n = 3889)	43.67	16.19	42.8	<0.0001
Maximally Engaged (n = 1261)	42.28	14.76	39.0	<0.0001

- Once patients were classified based on engagement, medication adherence among the respective cohorts was analyzed using a PDC measurement.

Table 2: Cohort 6-month PDC Comparison

Cohort Description	6-month PDC	Std. Dev.	Optimally Adherent (PDC ≥ 80%)	Std. Dev.	P-value
Unengaged (n = 9402)	74.3%	29.6%	57.1%	49.5%	<0.0001
Moderately Engaged (n = 3889)	79.6%	26.8%	64.3%	47.9%	<0.0001
Maximally Engaged (n = 1261)	83.1%	24.1%	70.0%	45.83%	<0.0001

Limitations

- Not all patients had diagnosis data available, and secondary diagnoses were unable to be captured.
- Our research was conducted among patients on a single therapy in this drug class.

References

1. Kim, J. Medication Adherence: The Elephant in the Room. U.S. Pharmacist. Published January 19, 2018. Accessed February 8, 2025. <https://www.uspharmacist.com/article/medication-adherence-the-elephant-in-the-room>.
2. New, large-scale study shows improved medication adherence using Accredo’s double-pronged approach. Accredo by Evernorth. Published October 28, 2024. Accessed February 8, 2025. <https://www.accredo.com/insights/impact-of-motivational-interviewing-on-adherence>.
3. The use of digital tools and positive impact on patient adherence. Accredo by Evernorth. Published April 22, 2024. Accessed February 8, 2025. <https://www.accredo.com/insights/use-digital-tools-and-positive-impact-patient-adherence>.
4. Xu H, Long H. Effect of Smartphone Application Based Intervention in Patients with Hypertension: a Systematic Review and Meta-Analysis (Preprint). *JMIR mHealth and uHealth*. 2020;8(10). doi: <https://doi.org/10.2196/21759>.

Table 3: Cohort Primary Diagnosis Stratification

Available Diagnosis	Unengaged	Moderately Engaged	Maximally Engaged
Asthma	12.4%	13.8%	16.7%
Atopic Dermatitis	61.4%	62.2%	56.9%
Eosinophilic Esophagitis	8.1%	6.1%	9.2%
Nasal Polyps	14.2%	13.8%	12.9%
Prurigo Nodularis	3.9%	4.1%	4.3%

- Using available ICD-10 codes, we evaluated engagement cohort stratification among the five on-label indications for dupilumab on patient clinical engagement.

- When Linear and Logistic regression models were applied to our 6-month PDC data, the validity of our results was further supported, and statistical significance was maintained.

Table 4: Linear Regression for Average 6-month PDC

Variable	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	72.837	0.845	86.17	<.0001
Age	0.060	0.016	3.75	0.0002
Male	1.369	0.486	2.82	0.0048
Unengaged	Reference			
Moderately Engaged	★ 5.433	0.552	9.85	<.0001
Maximally Engaged	★ 9.356	0.855	10.95	<.0001

Table 5: Logistic Regression for Average 6-month PDC

Parameter	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq	Odds Ratio	95% Wald Confidence Limits
Intercept	0.032	0.061	0.268	0.605		
Age	0.005	0.001	20.119	<.0001	1.005	1.003 1.007
Male	0.126	0.035	12.691	0.0004	1.134	1.058 1.216
Unengaged	Reference					
Moderately Engaged	0.302	0.040	55.808	<.0001	★ 1.353	1.250 1.464
Maximally Engaged	0.587	0.066	80.021	<.0001	★ 1.799	1.582 2.045

Conclusions

When controlled for age and gender among cohorts:

- **Maximally engaged** patients using both telephonic and digital clinical support offerings achieved **9.4% higher PDC** compared to Unengaged patients (p<0.0001) and were **1.8 times** more likely to be adherent (p<0.0001).
- **Moderately engaged** patients, who utilized one of either the telephonic or digital clinical support offerings, exhibited **5.4% higher PDC** than Unengaged patients (p<0.0001) and were **1.4 times** more likely to be adherent (p<0.0001).

New-to-therapy patients on a self-injected therapy, who utilized more than one mode of clinical support, achieved **superior** medication adherence, and by a **higher degree** than those engaged in only one mode of support, when compared to patients who were unengaged. Therefore, **access to and patient participation in a variety of clinical support modalities promotes more robust specialty medication adherence.**

