

Diagnosing preferences: Development of a novel preference-based decision-support tool for adult patients with eosinophilic esophagitis



Duke Clinical Research Institute

FROM THOUGHT LEADERSHIP
TO CLINICAL PRACTICE

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BACKGROUND

- Eosinophilic esophagitis (EoE) is a chronic, allergic inflammatory condition that can result in esophageal fibrosis.
- Medical treatment options vary in modality, efficacy, side effects, and regulatory approval for an EoE indication.
- Patients must select from several, non-dominant choices and desirability of a treatment depends on preferences.
- Management of EoE could benefit from tools that increase patient understanding of options, elicit patient preferences and facilitate shared-decision making.

OBJECTIVE

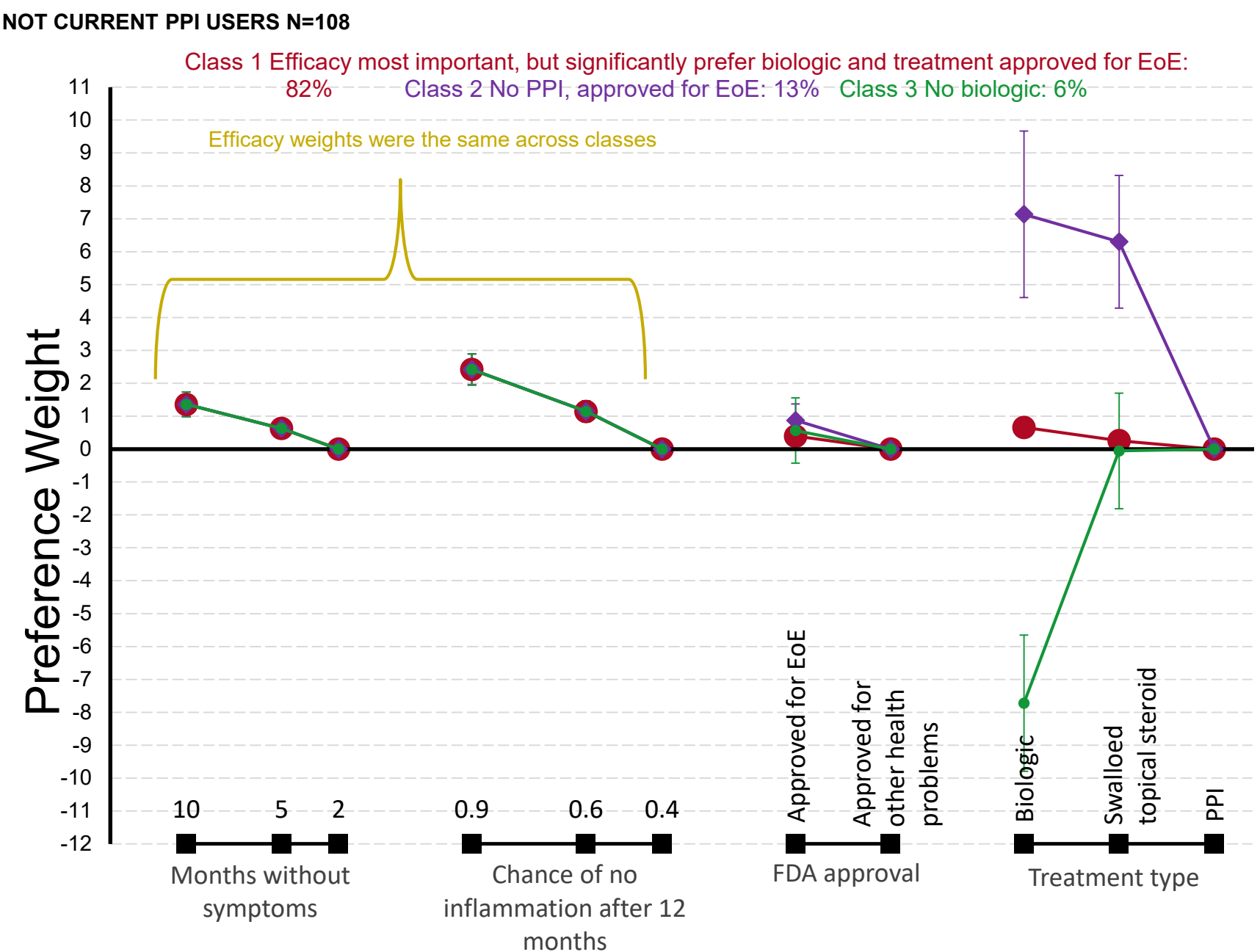
To develop a prototype decision-support tool for adult patients with EoE to facilitate shared decision-making.

METHODS

- Elicited treatment preferences for efficacy, regulatory approval, and treatment type using a discrete-choice experiment (DCE) with 212 patients.
- Identified 3 distinct classes of patients with similar preferences (i.e., patient-preference phenotypes) through latent-class analysis (Figure 1).
- Employed a Bayesian classification algorithm (see Gonzalez et al. 2023) to construct 3 choice questions to match a patient to one of the patient-preference phenotypes with high accuracy (Figure 2).
- Using patients' responses to questions in the tool, developed personalized reports that can be shared with clinicians (Figure 3).
- Pretested the tool for acceptability, usability and preference-diagnostic accuracy in think-aloud interviews with gastroenterologists and patients with EoE.

DIAGNOSING PREFERENCES

Figure 1. Class-specific preference weights.



A positive preference weight implies a more preferred feature, and a negative preference weight implies a less preferred feature. Error bars indicate 95% confidence intervals.

Figure 2. Questions to identify patient-preference phenotypes.

Q1	Alt 1	Alt 2
Months without symptoms	10	5
Chance of no inflammation	90%	60%
FDA approval	Approved	Other
Treatment type	Biologic	PPI
Class 1	48.7%	4.3%
Class 2	50.9%	0.0%
Class 3	0.3%	95.7%

Q2 - if Alt 1 in Q1	Alt 1	Alt 2
Months without symptoms	10	5
Chance of no inflammation	90%	40%
FDA approval	Other	Approved
Treatment type	PPI	Biologic
Class 1	98.5%	9.6%
Class 2	0.9%	90.4%
Class 3	0.6%	0.0%

Q3 - if Alt 2 in Q1	Alt 1	Alt 2
Months without symptoms	10	5
Chance of no inflammation	40%	90%
FDA approval	Other	Approved
Treatment type	Biologic	Steroid
Class 1	99.2%	3.6%
Class 2	0.1%	0.0%
Class 3	0.7%	96.4%

Figure 3. Example individualized report for Class 1 patient-preference phenotype.

Treatment preferences

Based on your answers:

- you may prefer a medicine that offers the highest chance of improving symptoms and reducing inflammation
- you may be open to any medicine type as long as it offers good outcomes
- how well a medicine works is more important than if it is approved specifically for EoE

To what extent do you agree or disagree with this summary?

Strongly disagree

Disagree

Neither agree nor disagree

Agree

Strongly agree

Questions for your doctor

Please use the space below to write down any questions you may want to ask your doctor.

←

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COMPONENTS OF THE TOOL



Educational materials describing treatment options



Questions capturing patient's treatment history



Questions diagnosing patient's preference phenotype



Individualized reports summarizing patient's treatment experience and preferences that can be shared with their clinician

CONCLUSIONS

- The tool employs an innovative way of diagnosing patients' treatment preferences based on DCE results.
- Early testing shows that the tool is highly acceptable and usable and can offer meaningful information to both patients with EoE and clinicians.
- The diagnostic questions quickly identified patient-preference phenotypes to guide discussion with clinicians with the goal of enhancing shared decision-making.

NEXT STEPS

- We will continue testing the tool with patients for preference-diagnostic accuracy, usability, acceptability, and impact on decisional conflict to determine the best use case for the tool.

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RESULTS OF PRETEST INTERVIEWS



9 interviews conducted with patients

- Average age 50 years
- 8 women, 1 man
- Highly educated sample
- 77% diagnosed more than 5 years ago

- ✓ 89% of patients rated the tool content as good or excellent.
- ✓ All patients agreed with individualized summaries of their preferences.
- ✓ The tool was perceived as helpful to think through treatment options.
- ✓ The tool was perceived as useful for decision-making.
- ✓ Could be complementary to a treatment-consultation with a doctor.
- ✓ Average usability score 93 (on a scale from 0 to 100).



5 interviews conducted with gastroenterologists

- Average age 47 years
- 3 general GIs, 2 specialized in esophageal disorders
- All practicing gastroenterology for more than 5 years

- ✓ 83% of GIs answered somewhat or strongly agree to the acceptability statements.
- ✓ Using the tool would complement the usual approach of helping patients decide on treatment.
- ✓ The tool can help patients make more informed and value-laden choices.
- ✓ Unclear if using the tool can lead to time and cost savings.