

Patient Preferences for Treatment Attributes in Inflammatory Bowel Disease Across 7 Countries in Europe Using a Discrete Choice Experiment

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Background

- The inflammatory bowel disease (IBD) treatment landscape is complicated by the absence of cure and reliance on long-term medication, which involve trade-offs among the available treatment's efficacy, safety, route of administration (RoA) and frequency of administration.^{1,2}
- Patient preferences aid physicians in selecting and modifying treatment strategies through shared decision-making, thereby enabling personalised care to suit specific patient needs and optimising treatment acceptance and adherence.¹
- A discrete choice experiment (DCE) entails a choice-based questionnaire that presents clinical scenarios and asks respondents to choose between different health- or treatment-related attributes (i.e. processes, structures and/or health outcomes).³

Objective

- To describe real-world data on patients' preferences towards attributes of advanced therapies for IBD, including the safety and efficacy profiles, frequency of administration and RoA, as well as the factors influencing them, in Europe.
- Preference weighting, quality of life (QoL) status, reasons for switching treatment and expected treatment outcomes with respect to QoL have been previously presented.

Methodology

Study design

- Based on discussions with a steering committee of clinical and health-economic experts and in-depth interviews of 30 German focus patients with a dual-questioning approach (treatment characteristics and their distinctness), the most important treatment attributes and levels (options of choice) to be included in the DCE were selected.
- A stated-preference observational study based on 2 separate DCE models for patients with Crohn's disease (CD) or ulcerative colitis (UC) was then conducted (October 2020 to January 2021) via the Carenity platform and local partnerships across 7 European countries (Belgium, Italy, France, the Netherlands, Spain, Switzerland and the United Kingdom).
- The DCE portion of each questionnaire (i.e. choice sets) was constructed by Ingress Health using an orthogonal main effects plan to generate a fractional factorial design.

Eligibility criteria

- Consenting patients aged ≥18 years from the 7 European countries who self reported having and being previously/currently treated for CD or UC were enrolled.
- Patients with incomplete data (i.e. those who never initiated or finished the questionnaire) were excluded.

Outcomes

- A total of 8 different choice tasks and 1 holdout card for CD and 11 choice tasks plus 1 holdout card for UC were generated.
- Patients selected 1 hypothetical treatment for CD or UC from the DCE questions.
- The attributes for CD and UC treatment along with their preference weights were as follows:
 - CD: Remission after 1 year, occurrence of serious adverse events (SAEs) and mild adverse events (mild AEs), long-term remission on maintenance treatment, and RoA of the medication.
 - UC: Corticosteroid-free remission after 1 year, healing of the bowel lining (intestinal mucosa) after 1 year, occurrence of SAEs and mild AEs, long-term remission on continuous treatment, and RoA of the medication.

Statistical analysis

- Data processing and statistical analyses were performed using R-3.6 software (R Foundation for Statistical Computing, Vienna, Austria).
 - Categorical variables were reported using frequencies and percentages and continuous variables are presented as mean.
 - Omitted categories of attribute levels were coded as 0 and used as a reference for comparing the significance of part-worth utility estimates.
 - Regression coefficients for each attribute level represent the mean part-worth utility of that attribute level in the respondent sample.
- Two conditional logit models were employed to estimate the relative importance of treatment attributes.
- Relative importance of attributes and level rankings have been established based on comparisons of part-worth values by dividing the range of utilities for a single attribute by the sum of the ranges of all attributes.

Results

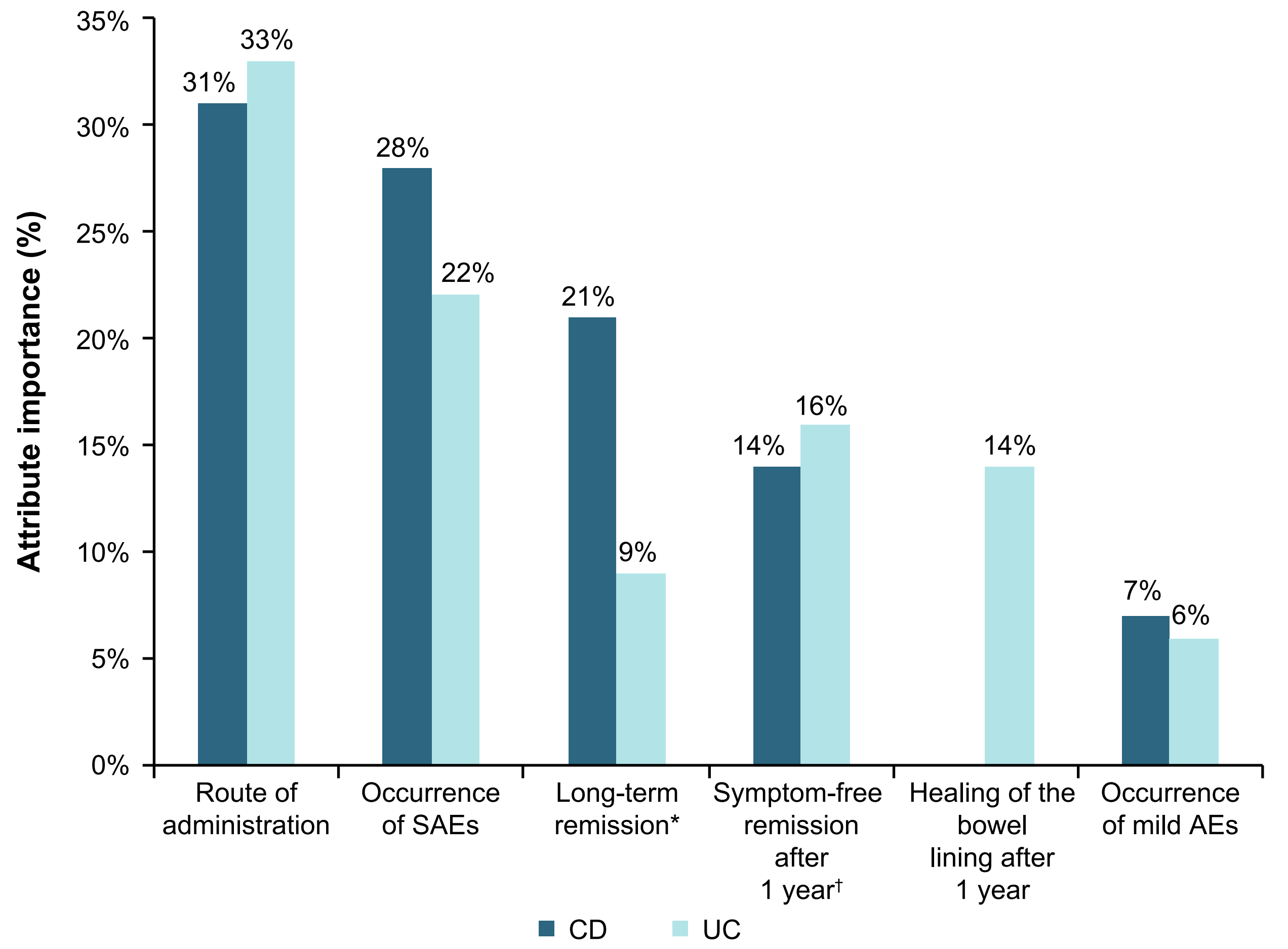
Respondents' demographic and clinical profiles

- Overall, 686 completed survey responses were analysed (CD: 360; UC: 326), and mean age of respondents was 48.0 (CD) and 50.0 (UC) years.
- The CD and UC cohorts predominantly comprised female patients (71.9% and 57.7%, respectively).
- Around 76.7% and 78.5% of patients stated being currently treated for CD and UC, respectively; most patients with CD (62.7%) were receiving advanced therapies, whereas most patients with UC were receiving corticosteroids (55.5%).
- Overall, 85.0% and 82.5% of CD and UC patients reported previously using corticosteroids, respectively.

Patient preference for treatment attributes

- For both patients with CD and UC, RoA was the most important attribute for treatment choice (attribute importance: CD, 31%; UC, 33%; **Figure 1**).

Figure 1: Preferences for treatment attribute among patients with IBD



*Long-term remission on maintenance treatment for CD or continuous treatment for UC
†Corticosteroid-free remission after 1 year for patients with UC
AEs, adverse events; CD, Crohn's disease; IBD, inflammatory bowel disease; SAEs, serious adverse events; UC, ulcerative colitis

- Comparison of level part-worth utility (**Table 1**) showed the following:
 - Patients with CD preferred subcutaneous (SC) injections to intravenous (IV) treatment, irrespective of the frequency of administration (P<0.001; **Table 1**).
 - Patients with UC preferred oral pills (P<0.001) and SC injections (P<0.01 and P<0.001 for injections every 1–2 and 4–12 weeks, respectively) to IV injections (every 4–8 weeks).
 - Patients with CD and UC preferred a treatment that minimised the risk of SAEs (P<0.001 each) and mild AEs (P<0.05 and P<0.01, respectively).

Table 1: Level preference weights to show the relative importance of treatment attributes

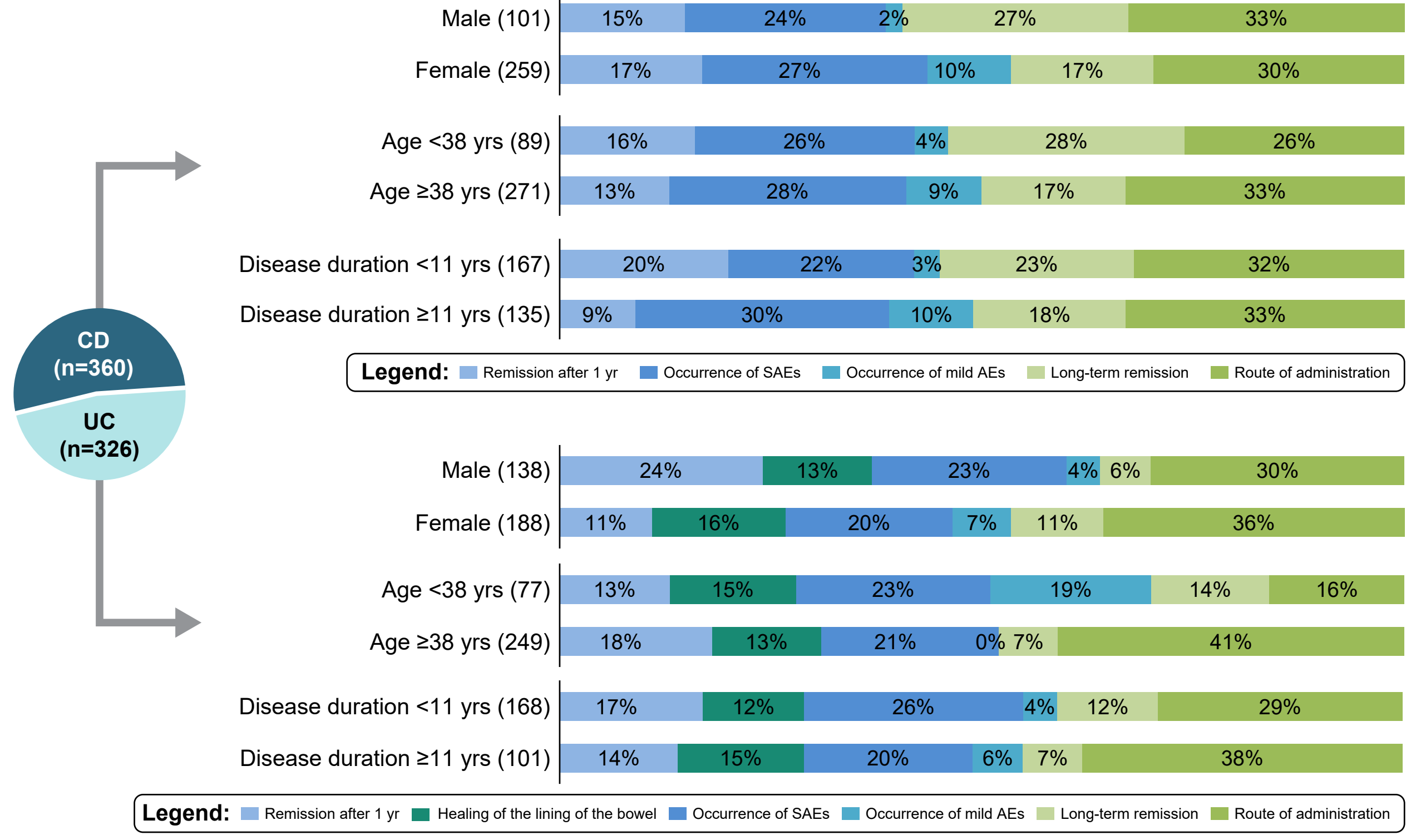
CD				UC			
Attribute	Level	Preference weights	P value	Attribute	Level	Preference weights	P value
Remission after 1 year	REM (32%)	0.06	0.28	Corticosteroid-free remission after 1 year	REM (14%)	0.05	0.43
	REM (51%)	0.17	<0.01		REM (45%)	0.28	<0.001
	REM (7%)	Constrained to be 0			REM (6%)	Constrained to be 0	
-	-	-	-	Healing of the bowel lining (intestinal mucosa) after 1 year	MUC (31%)	0.22	<0.001
	-	-	-		MUC (55%)	0.24	<0.001
	-	-	-		MUC (13%)	Constrained to be 0	
Occurrence of SAEs	SAE (9%)	0.34	<0.001	Occurrence of SAEs	SAE (5%)	0.38	<0.001
	SAE (25%)	Constrained to be 0			SAE (23%)	Constrained to be 0	
Occurrence of mild AEs	mild AE (59%)	0.09	<0.05	Occurrence of mild AEs	mild AE (49%)	0.10	<0.01
	mild AE (87%)	Constrained to be 0			mild AE (85%)	Constrained to be 0	
Long-term remission on maintenance treatment	CON (82%)	0.10	0.10	Long-term remission on continuous treatment	CON (85%)	0.05	0.36
	CON (92%)	0.25	<0.001		CON (95%)	0.16	<0.01
	CON (69%)	Constrained to be 0			CON (72%)	Constrained to be 0	
Administration of the medication	SC (1–2 weeks)	0.35	<0.001	Administration of the medication	SC (1–2 weeks)	0.19	<0.01
	SC (4–12 weeks)	0.38	<0.001		SC (4–12 weeks)	0.42	<0.001
	IV (4–8 weeks)	Constrained to be 0		-	TAB (twice daily)	0.58	<0.001
	-	-			IV (4/8 weeks)	Constrained to be 0	

AEs, adverse events; CD, Crohn's disease; CON, long-term remission on treatment; IV, intravenous administration of the medication; MUC, healing of the intestinal mucosa; REM, remission after 1 year; SAEs, serious adverse events; SC, subcutaneous administration of the medication; TAB, tablets; UC, ulcerative colitis

Importance of treatment attributes stratified by patient profile

- Within the CD cohort, the probable occurrence of AEs (mild and serious) had a higher impact on treatment choice in female patients and in patients with a longer disease duration (≥11 years), while long-term remission had a higher impact on younger patients (i.e. those aged <38 years; **Figure 2**).
- Within the UC cohort, RoA had a higher impact in female patients, whereas the probability of remission after 1 year had a higher impact on treatment decision in male patients.
- While younger patients with UC quoted AEs more often, RoA had a higher impact in older patients.

Figure 2: Preferences for CD and UC treatment attributes based on the patient profile

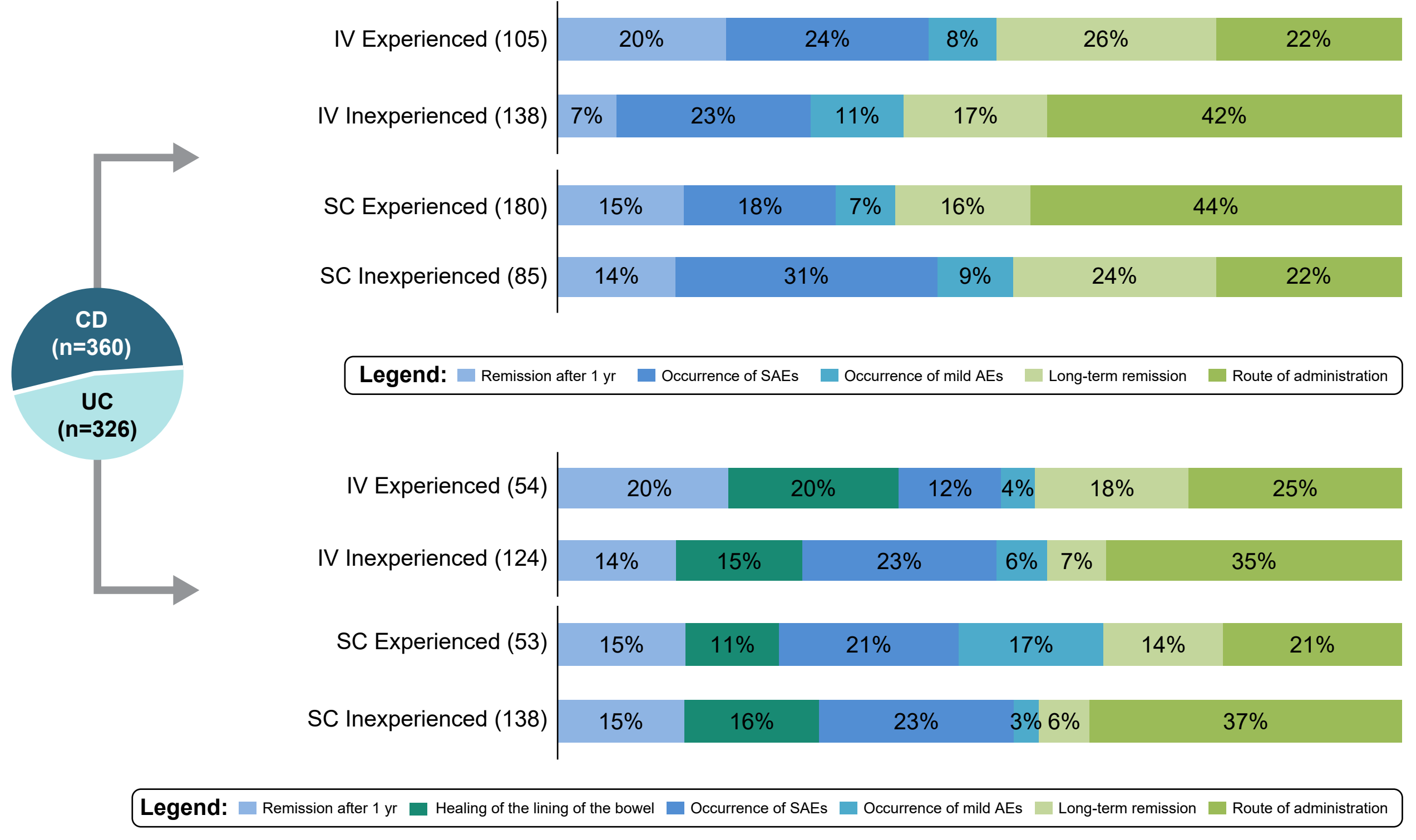


AEs, adverse events; CD, Crohn's disease; SAEs, serious adverse events; UC, ulcerative colitis; yrs, years

Importance of treatment attributes stratified by RoA

- Patients with CD who were IV experienced gave more importance to remission than to RoA, while those who were SC experienced gave more importance to RoA than to the probable occurrence of AEs (**Figure 3**).
- In patients with UC, the probability of AEs (mild and serious) had a higher impact on treatment decision in SC-experienced patients, whereas RoA was the more highly weighted attribute for SC-inexperienced patients.

Figure 3: Preferences for CD and UC treatment attributes based on the route of administration

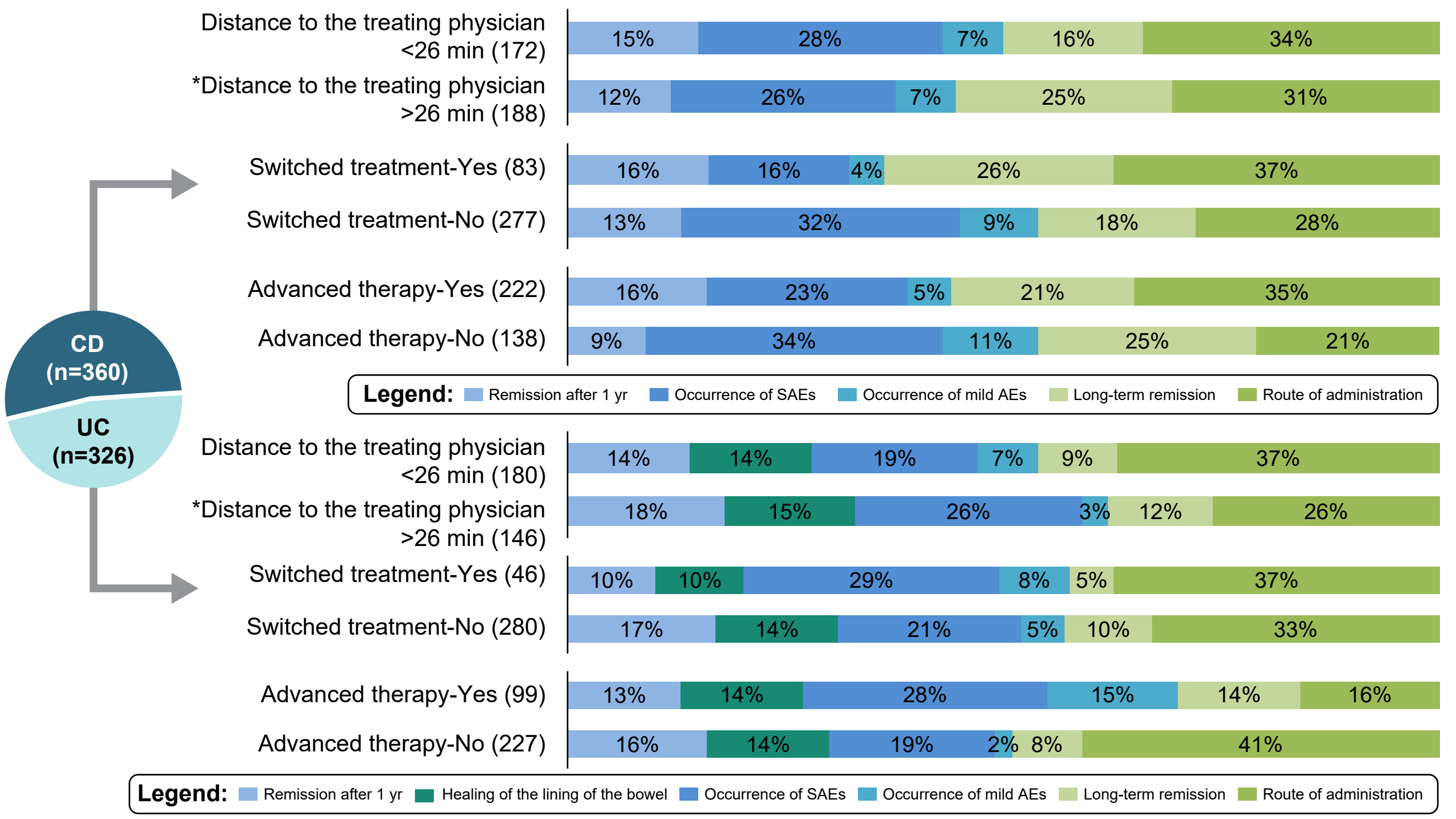


IV, All patients who have received an IV treatment at least once.
SC, All patients who have received an SC treatment at least once but never received an IV treatment.
AEs, adverse events; CD, Crohn's disease; IV, intravenous; SAEs, serious adverse events; SC, subcutaneous; UC, ulcerative colitis; yrs, years

Importance of treatment attributes stratified by care pathway

- In the CD cohort, the probable occurrence of AEs (mild and serious) had a higher impact on patients who had not switched treatment and had not received advanced therapy (**Figure 4**).
- For patients with UC who lived further than 26 minutes from the place of care, the probability of AEs (mild and serious) was an important consideration, whereas RoA was more important to patients who lived closer.
- The probability of AEs (mild and serious) was the most important attribute for patients with UC who had received advanced therapy, while RoA was a priority for those who had not.

Figure 4: Preferences for CD and UC treatment attributes based on the care pathway



*All patients who had indicated living at more than 10 km from the place of care were considered as living at more than 26 minutes away from the treating physician.
AEs, adverse events; CD, Crohn's disease; SAEs, serious adverse events; UC, ulcerative colitis; yrs, years

Conclusions

- Patients with CD or UC reported similar preferences for the route and frequency of administration but differed on efficacy aspects.
- Patient preferences varied with the patient profile, RoA and care pathway.
- DCE helps identify nuanced preferences and ascertain the influence of attribute levels on treatment choice, thereby highlighting the importance of personalised care and shared decision-making in improving treatment adherence and maximising treatment benefits.

References

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Disclosures

GF has received consultancy fees from MSD, Takeda, AbbVie, Janssen, Pfizer, Celtrion, Sandoz, Alfasigma, Samsung, Amgen, Roche and Ferring. NB-E and FB are employees of Takeda Pharmaceuticals International AG and hold stocks or stock options. PV is an employee of Carenity. EH has no conflicts of interest to declare.

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