

# Patients' Priorities for Treatment in Severe Asthma

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## BACKGROUND

- Individuals with asthma have unpredictable, recurrent episodes of symptoms and decreased physical and psychological functioning, which in turn affect health-related quality of life.<sup>1</sup>
- The standard of care for asthma includes anti-inflammatories and bronchodilators. There remain subsets of patients with severe asthma for whom high doses of the standard of care are not effective.<sup>2</sup>
- Severe asthma represents less than 10% of all asthma<sup>3</sup> but results in 30% to 40% of the economic burden of asthma.<sup>4</sup>

## OBJECTIVE

- This pilot study explored the priorities of patients with severe asthma in relation to treatment using best-worst scaling (BWS).

## METHODS

### Patient Sample

- Interviews were conducted with 20 individuals in the United Kingdom.
- Participants were aged 18 to 65 years, had self-reported severe, poorly controlled asthma, used at least one asthma controller medication, and had been treated with steroids for their asthma within the last 3 months. Participants with COPD or who were aged 50 years or older with a smoking history of 10 pack-years or more were excluded.
- The study was reviewed and granted approval from one of RTI International's institutional review board committees.

### BWS Questionnaire

- BWS is an experimental choice-based technique that can be used to elicit an individual's preferences across a set of attributes or features related to a treatment.
- A total of 17 features were included to represent potential benefits, harms, or administration features that might be associated with an asthma treatment. The 17 features were incorporated into a set of 12 BWS questions using an experimental design generator based on the PROC OPTEX procedure in SAS (version 9.3).
- Each question included five features, with each feature appearing either three or four times across the 12 questions. An example BWS question is given in Figure 1.
- For each question, participants were asked to select (1) the one feature that would be the most important to them when trying to decide whether to take the treatment, and (2) the one feature that would be the least important to them in making this decision.

Figure 1. Example BWS Question

MOST IMPORTANT TO DECISION	Feature	LEAST IMPORTANT TO DECISION
	You can walk further and/or for a longer period of time (4)	
	Needing a blood test before starting the medication (17)	
	Your daily activities are less limited (7)	
	You are able to stop regular, long-term use of steroid tablets (10)	
	Halving the number of severe asthma attacks that result in you being in hospital overnight (2)	

### Data Analysis

- Within each BWS question, the feature chosen as most important was assigned a score of 1, the feature chosen as least important was assigned a score of -1, and all other features in the question were assigned a score of 0.
- For each feature, BWS weights were derived by summing assigned scores across questions and across participants and then dividing by the number of times the feature was presented.
- Weights ranged from -1 to +1, with larger positive values indicating higher relative importance.

## RESULTS

### Sample Characteristics

- Table 1 presents the demographic and disease characteristics of the interview participants.

Table 1. Demographic and Asthma Characteristics

Sample Characteristic	Interview Sample (N=20)	
Age (years)	Median	38
	Range	23-60
Sex, n (%)	Male	6 (30)
	Female	14 (70)
Relationships status, n (%)	Married or living as married	13 (65)
	Divorced/single	7(35)
Employment status, n (%)	Working	16 (80)
	Not working	4 (20)
Years since asthma diagnosis	Median	23
	Range	4-59
Self-reported severity, n (%)	Mild	0 (0)
	Moderate	12 (60)
	Severe	7 (35)
	Very severe	1 (5)
Number of asthma attacks in previous 12 months treated with oral corticosteroids	Median	2
	Range	1-13
Number of attacks in previous 12 months requiring hospital admission	Median	0
	Range	0-12

### BWS Weights

- The most important features were improved shortness of breath, improved lung function, and halving the number of moderate asthma attacks (Figure 2). These features were all selected as the most important in more than 25% of presentations (Figure 2).
- The least important features were having a mild skin reaction at the site of the injection and needing a blood test before starting the medication (Figure 2). These features were both selected as the least important in more than 65% of presentations (Figure 2).
- Some features (e.g., intravenous administration every 4 weeks, halving the number of severe attacks, and self-injection every 2-4 weeks) were selected as most important in more than 25% of presentations but also were selected as least important in more than 15% of presentations, thus lowering the overall BWS weight (Figure 2).
- Such features often prompted strong and diverse qualitative comments. For example, preferences for drug administration features were often driven by a dislike of injections or self-injecting, or by perceived convenience. Their selection as the most important feature varyingly indicated a strong preference or a strong aversion.

Figure 2. BWS Weights

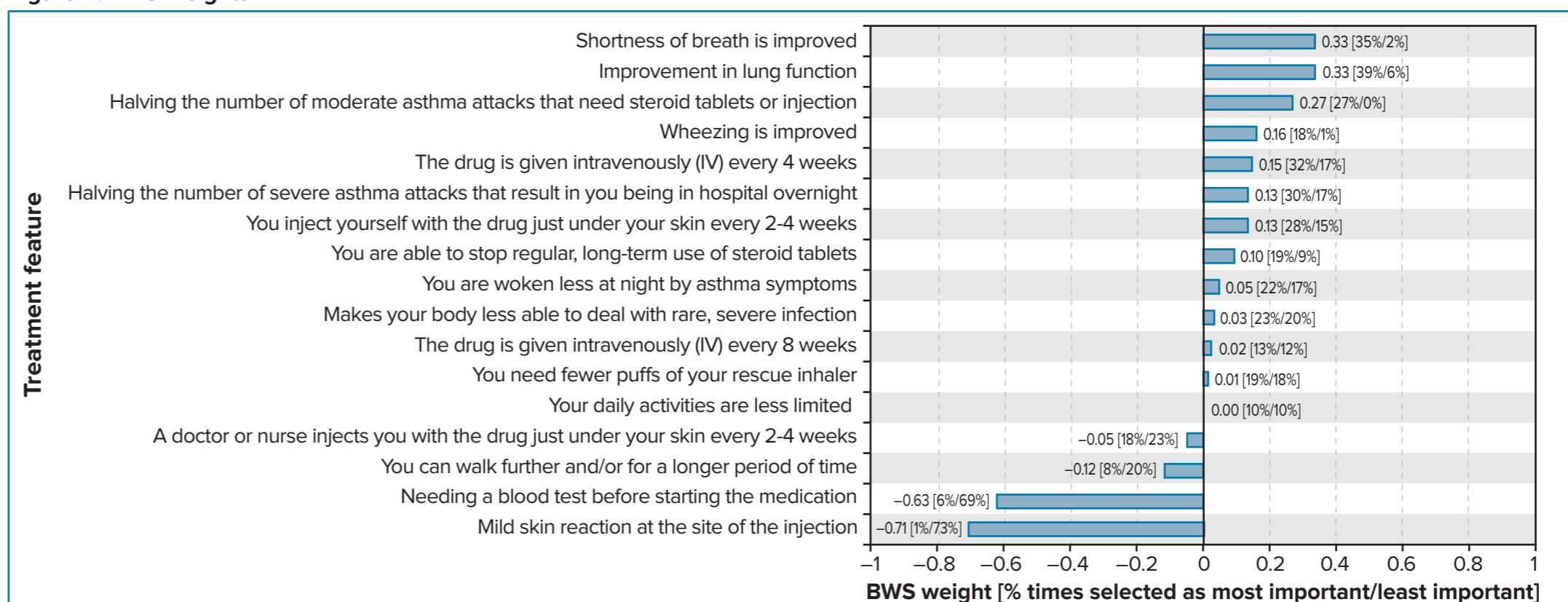


Figure 3. Summary of Qualitative Comments on Most Important Feature Selection

Feature	Reasons for Selection
Shortness of breath is improved	Viewed as the main symptom experienced (most severe, experienced on a daily basis, and had the most significant impact). Also associated with benefits in terms of improved functional ability and reduced need for steroids and hospitalisation.
Improvement in lung function	Benefits of improved breathing, needing to use a rescue inhaler and/or steroids less often, having fewer attacks, reducing the impact of asthma on participants' lives, and having the physiological benefit of increased oxygen intake.
Halving the number of moderate asthma attacks that need steroid tablets or injection	Benefit of fewer hospital visits and injections, the reduction or avoidance of taking steroids, the impact of attacks on daily life, and the ability to walk further. Also related to the frequency with which moderate attacks occurred.

Figure 4. Summary of Qualitative Comments on Least Important Feature Selection

Feature	Reasons for Selection
Mild skin reaction at the site of the injection	Considered to be little or no bother, being an expected outcome with injections, and being a small price in return for feeling better.
Needing a blood test before starting the medication	Considered to be little or no bother, a routine part of medical care, and a one-time procedure.

## CONCLUSIONS

- For this sample of patients with self-reported severe asthma, treatment benefits such as improved shortness of breath, improved lung function, and fewer moderate asthma attacks were prioritised over potential harms or administration features, particularly having a mild skin reaction and needing a blood test.
- There was significant heterogeneity in preferences for individual features.
- The results of this pilot study need to be explored further in a full-scale preference elicitation study.

## ACKNOWLEDGEMENT

Funding for this study was provided by Janssen-Cilag AS.

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