

# Characterizing Attack-Related Health Utility in Hereditary Angioedema

Timothy Craig, DO<sup>1</sup>; Kristen A. Cribbs, PhD MPH<sup>2</sup>; Shawn Czado<sup>3</sup>

<sup>1</sup>The Pennsylvania State University, College of Medicine, Allergy, Asthma and Immunology, Hershey, PA, USA; <sup>2</sup>Alkemi LLC, Manchester Center, VT, USA; <sup>3</sup>KalVista Pharmaceuticals, Inc., Cambridge, MA, USA

## Background

- Hereditary angioedema (HAE) is a rare, genetic disease characterized by debilitating swelling episodes in various parts of the body<sup>1</sup>
- Health-state utilities are proxies for patient quality-of-life and important inputs for health economic models<sup>2</sup>
- As such, utilities facilitate the assessment of new medical technology impacts and guide healthcare decision-making<sup>3</sup>
- To date, no comprehensive assessments of health utilities in HAE have been conducted; this study aimed to fill this gap

## Methods

- We conducted a systematic literature (SLR) on economic outcomes, including utility values, among patients with HAE, including those using prophylactic and/or on-demand HAE therapies, in accordance with PRISMA guidelines
- We conducted searches in PubMed, Embase, and health technology assessment (HTA) websites
- Article inclusion was limited to English peer-reviewed and grey literature published between January 1, 2007, and July 1, 2022
- Two independent reviewers assessed literature eligibility and abstracted data

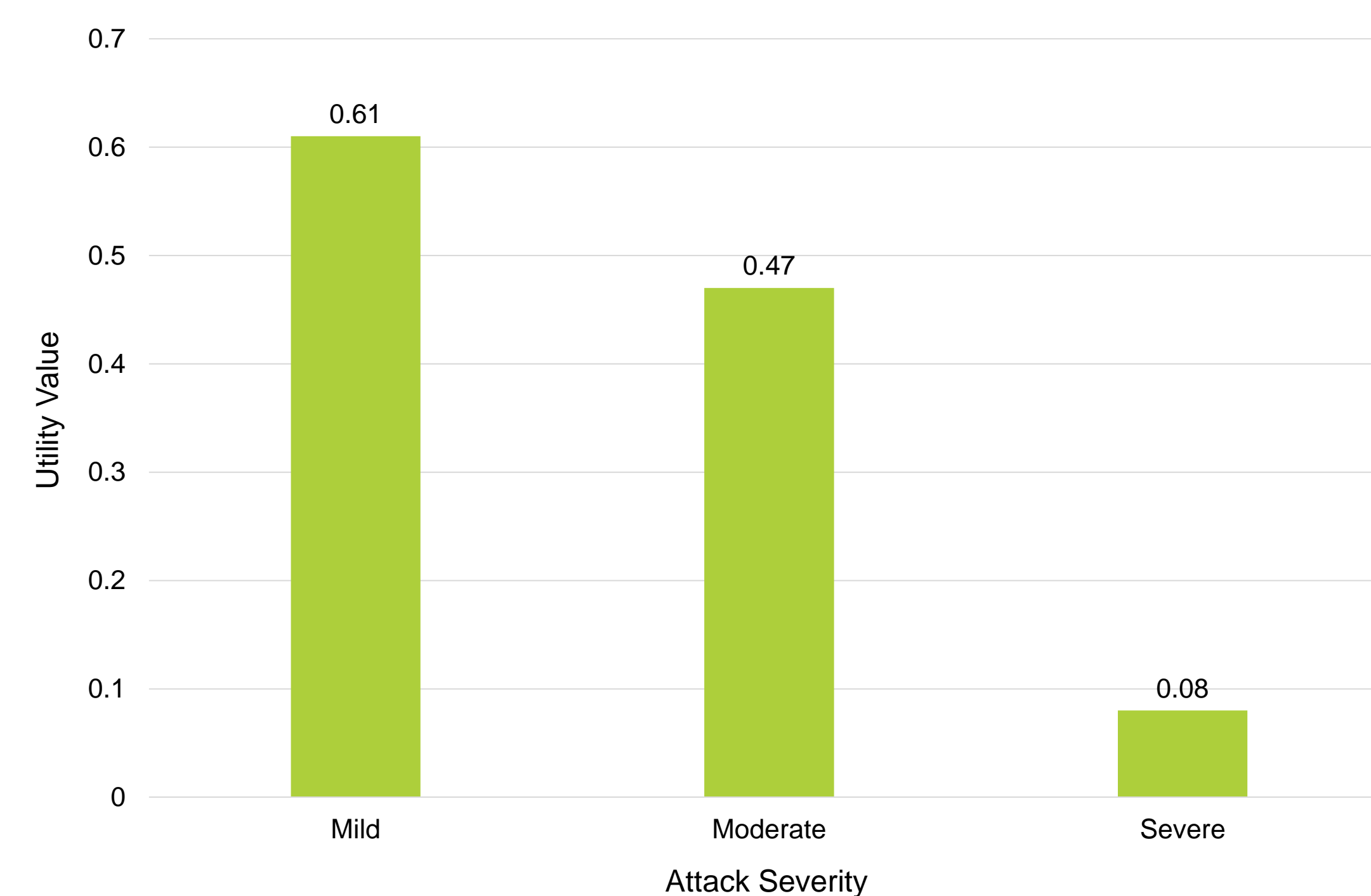
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## Results

- We identified 66 studies. The majority of studies were observational (64%) and peer-reviewed (59%), and the most common study location was the United States (42%) (**Table 1**).
- Among studies reviewed, 15 (23%) reported on HAE utilities, with mean non-attack utility ranging from 0.72 – 0.83 and mean utility during an attack ranging from 0.44 – 0.51<sup>4,5</sup>
- We observed an inverse relationship between utility and attack severity, with mean weights of 0.61, 0.47, and 0.08 for mild, moderate, and severe attacks, respectively<sup>4</sup> (**Figure 1**)
- Utilities also varied by attack location, with the lowest mean utility values observed for abdominal and laryngeal attacks (0.35 and 0.13, respectively)<sup>6</sup> (**Figure 2**)

**Figure 1. Inverse Relationship Between Utility Value and Attack Severity<sup>4</sup>**



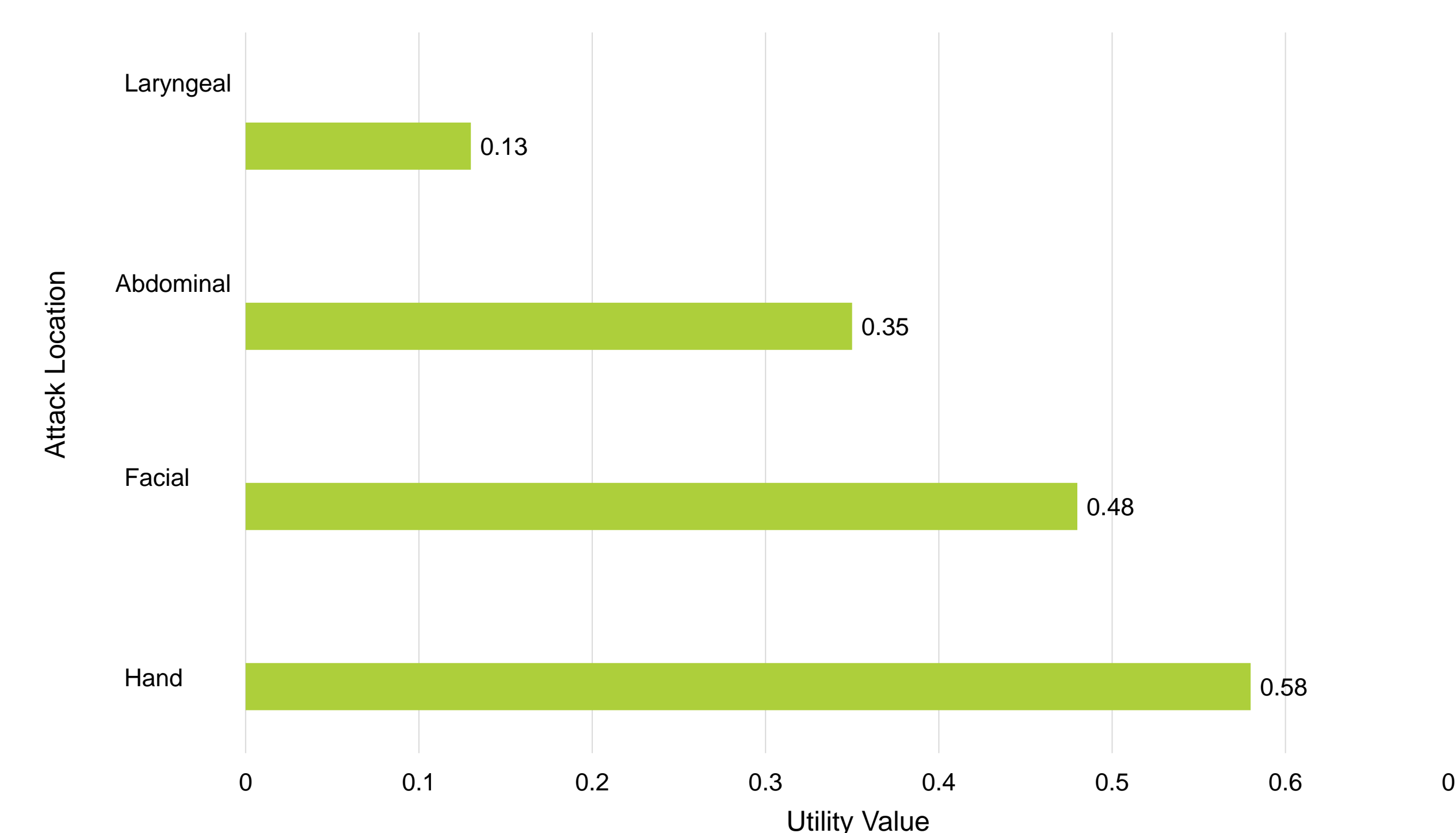
\*Attack severity was based on EQ-5D 10-point scale

**Table 1. SLR Study and Sample Characteristics**

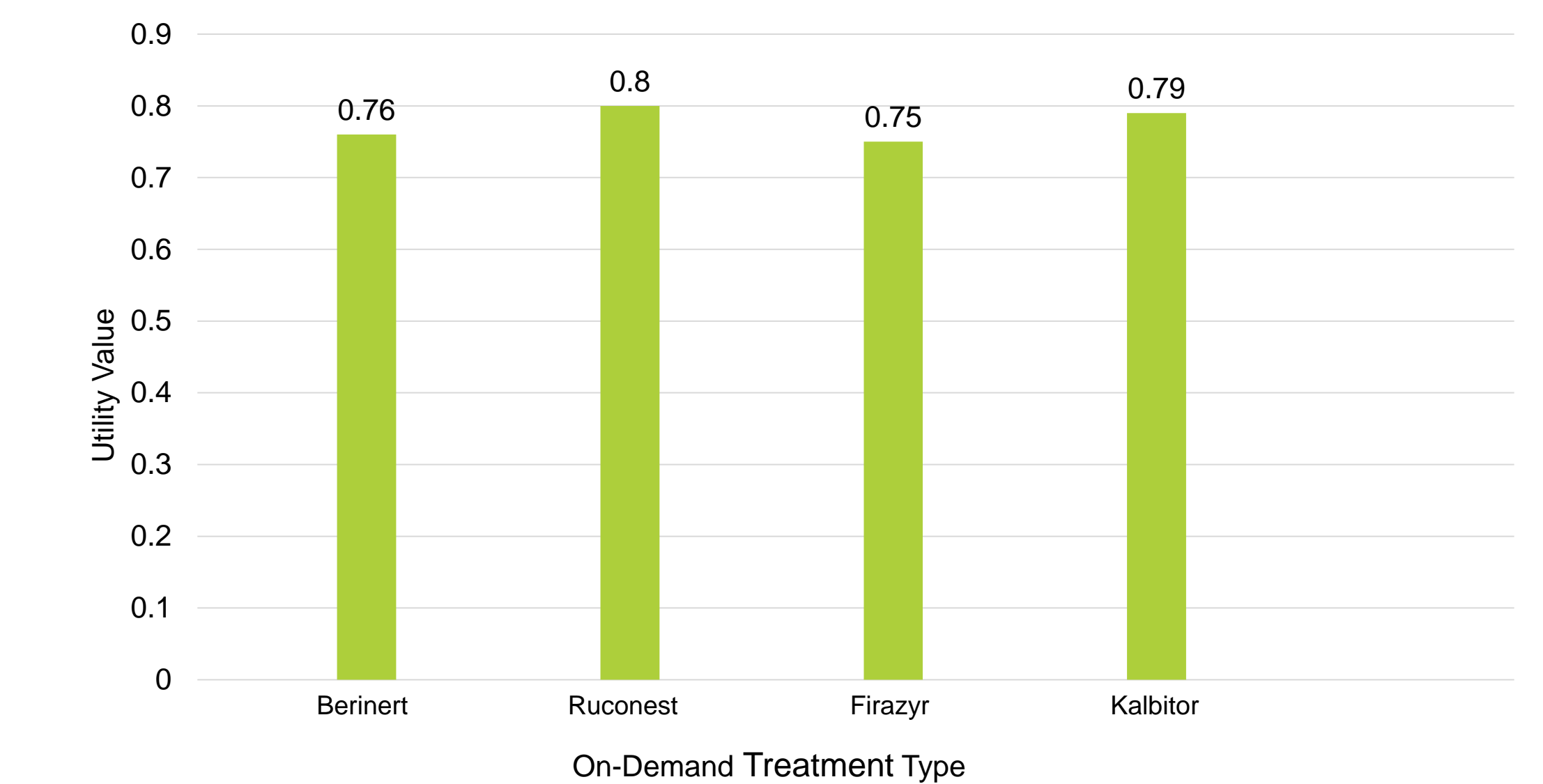
Characteristic	n (%)
<b>Total Number of Publications</b>	66 (100)
<b>Sample Size, number of patients</b>	
Minimum	1
Maximum	737
<b>Publication Type</b>	
Peer-Reviewed	39 (59.1)
Conference Proceeding	14 (21.2)
Economic Report	13 (19.7)
<b>Study Design</b>	
Observational	42 (63.6)
Economic Analysis/Modeling	23 (34.8)
Randomized Controlled Trial	1 (1.5)
<b>Study Location</b>	
United States	28 (42.4)
Europe	25 (37.9)
Other	13 (19.7)
<b>HAE Treatment Type, Studies*</b>	
On-demand treatment	20
Prophylactic Treatment	15

\*32 studies assessed HAE therapies; some assessed both on-demand and prophylactic treatments

**Figure 2. Mean Utility Values by Attack Location<sup>6</sup>**



**Figure 3. Utility Values for On-Demand HAE Treatments<sup>7</sup>**



- Modeling of on-demand HAE therapies suggest that treatment may improve attack-associated disutility to non-attack levels (0.75 – 0.80) that fall within population norms<sup>7</sup> (**Figure 3**)

## Conclusions

- This SLR revealed that the burden of HAE attacks translates into substantial health status disutility
- Laryngeal and abdominal attacks yielded the greatest disutility compared to attacks in other locations
- While treatment with on-demand therapy attenuates attack-associated disutility, we found that increasing attack severity substantially impacts patient utility
- New therapeutics that facilitate early treatment, thereby mitigating attack severity and hastening attack resolution, are needed to yield the greatest patient benefit

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## Disclosures

This study was sponsored by KalVista Pharmaceuticals, Inc. SC is an employee of KalVista Pharmaceuticals, Inc. No authors received compensation for their involvement in this research.



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