

Real-world Impact of Treated Hereditary Angioedema Attacks on Patients' Work Productivity and Ability to do Daily Activities

Timothy Craig¹, Paula Busse², Sandra Christiansen³, Maeve O'Connor⁴, Cristine Radojicic⁵, Julie Ulloa⁶, Sherry Danese⁶, Tomas Andriotti⁷, Paul Audhya⁷, Vibha Desai⁷

¹The Pennsylvania State University School of Medicine, State College, PA, United States; ²The Mount Sinai Hospital, New York, NY, United States; ³University of California San Diego, La Jolla, CA, United States; ⁴Allergy, Asthma, & Immunology Relief of Charlotte, Charlotte, NC, United States; ⁵Duke University School of Medicine, Durham, NC, United States; ⁶Outcomes Insights, Agoura Hills, CA, United States; ⁷KalVista Pharmaceuticals, Cambridge, MA, United States

Background

- Hereditary angioedema (HAE) is a rare genetic disease associated with unpredictable, painful, and debilitating attacks of tissue swelling in various locations of the body that can be life-threatening depending on the location(s) affected
- Global HAE treatment guidelines recommend that people living with HAE should consider treating all attacks early upon recognition to reduce the severity and duration¹⁻³
- Although reductions in frequency of HAE attacks have been demonstrated with non-androgen long-term prophylaxis (LTP), many patients continue to experience attacks requiring on-demand treatment²
- We examined the impact of the patients' last treated HAE attack on their ability to work and do daily activities, and whether this was diminished among those receiving LTP

1. Betschel S, Badiou J, Binkley K, et al. The International/Canadian Hereditary Angioedema Guideline. *Allergy, Asthma & Clinical Immunology*. 2019;11/25 2019;15(1):72. doi:10.1186/s13223-019-0376-8

2. Busse PJ, Christiansen SC, Riedl MA, et al. US HAEA Medical Advisory Board 2020 Guidelines for the Management of Hereditary Angioedema. *J Allergy Clin Immunol Pract*. 2021;9(1):132-150.e3. doi:10.1016/j.jaip.2020.08.046

3. Maurer M, Magerl M, Betschel S, et al. The international WAO/EAACI guideline for the management of hereditary angioedema-The 2021 revision and update. *Allergy*. Jul 2022;77(7):1961-1990. doi:10.1111/all.15214

Methods





- The US Hereditary Angioedema Association recruited participants with Type 1 or 2 HAE between April and June 2023
- Participants had to be at least 12 years old and had treated at least 1 HAE attack within the prior 3 months with an approved on-demand therapy, for inclusion in the survey
 - Participants completed a 20-minute, self-reported, online survey that inquired about their last treated HAE attack
 - Target sample size: 80 adults; 20 adolescents
- The Work Productivity and Activity Impairment Questionnaire: General Health assessed the impact of the last treated attack on participants' ability to work and do daily activities during 7 days following attack onset

US Participant Demographics

	Total (n=94)	Employed (n=42)
Current mean age, (SD)	39.4 (17.4)	39 (12.5)
Mean age at diagnosis, years (SD)	18 (12.6)	20.2 (13)
HAE Type		
Type 1	81%	86%
Type 2	19%	14%
Gender		
Female	72%	73%
Race / Ethnicity		
White	87%	83%
Hispanic or Latino	9%	10%
Black / African American	3%	2%
American Indian/Alaskan Native	2%	5%
Asian	3%	2%
Other	1%	--
Payer Coverage		
Private or commercial health insurance	69%	86%
Medicare	16%	5%
Medicaid	14%	2%
Other	8%	10%

- 42 participants self-reported as employed at the time of their last treated attack

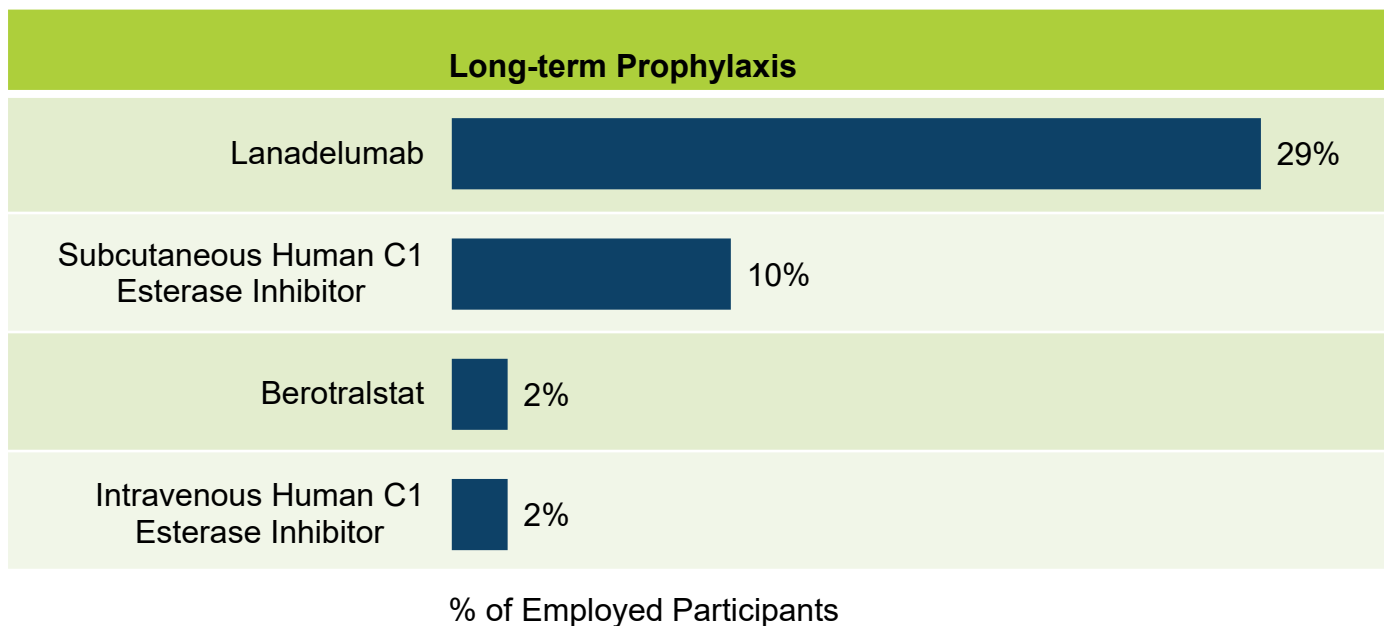
On-Demand Therapy Used for Last Treated Attack

On-Demand Therapy		On-demand Treatment Only (n=24)	On-demand Treatment + LTP (n=18)
Icatibant	 71%	71%	72%
Recombinant C1 Esterase Inhibitor	 19%	21%	17%
Plasma Derived C1 Esterase Inhibitor	 7%	4%	11%
Ecallantide	 2%	4%	0%

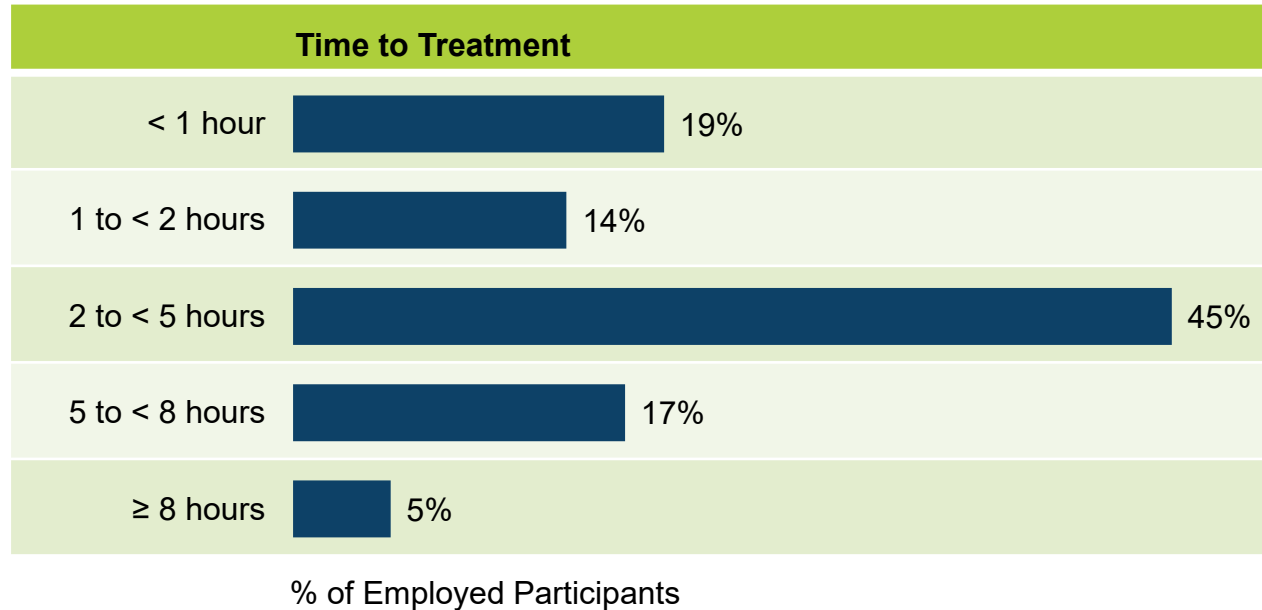
% of Employed Participants

- 24 (57%) managed HAE attacks with on-demand treatment only
- 18 (43%) were receiving long-term prophylaxis (LTP) + on-demand

Long-Term Prophylaxis at Time of Last Treated Attack



Time to Treatment



- 19% of employed participants treated their HAE attack in <1 hour

Patient-reported Attack Severity at the Time of Treatment

Attack Severity ^a		On-demand Treatment Only (n=24)	On-demand Treatment + LTP (n=18)
Mild	29%	25%	33%
Moderate	62%	71%	50%
Severe	10%	4%	17%
Very Severe	0%	0%	0%

% of Employed Participants

- Thirty participants (72%) rated their attack severity as moderate to very severe (75% On-demand; 67% LTP)

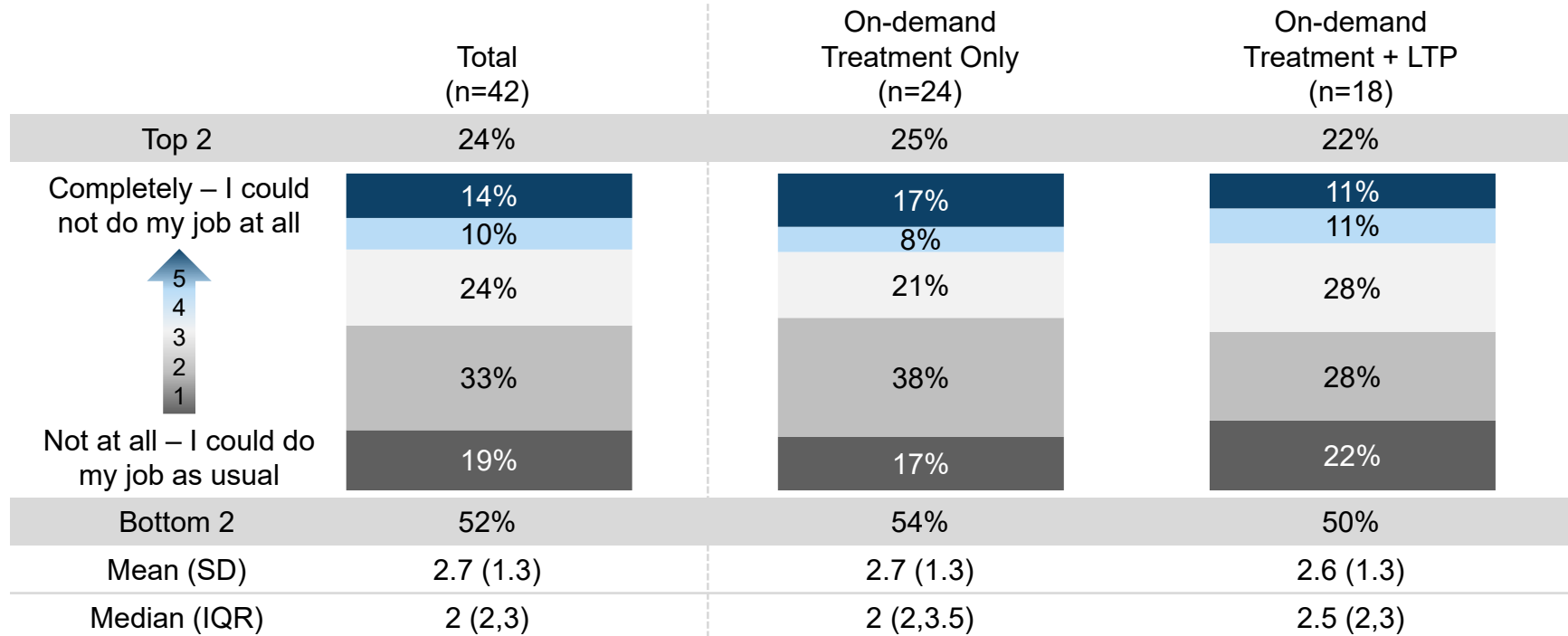
^aQ: How severe was the attack when you decided to treat it?

Initial Anatomical Site of Last Treated Attack

Initial Site of Attack		On-demand Treatment Only (n=24)	On-demand Treatment + LTP (n=18)
Abdominal/Stomach	64%	67%	61%
Peripheral	14%	13%	17%
Face	7%	13%	0%
Throat	7%	8%	6%
Genitals	5%	0%	11%
Trunk	2%	1%	1%

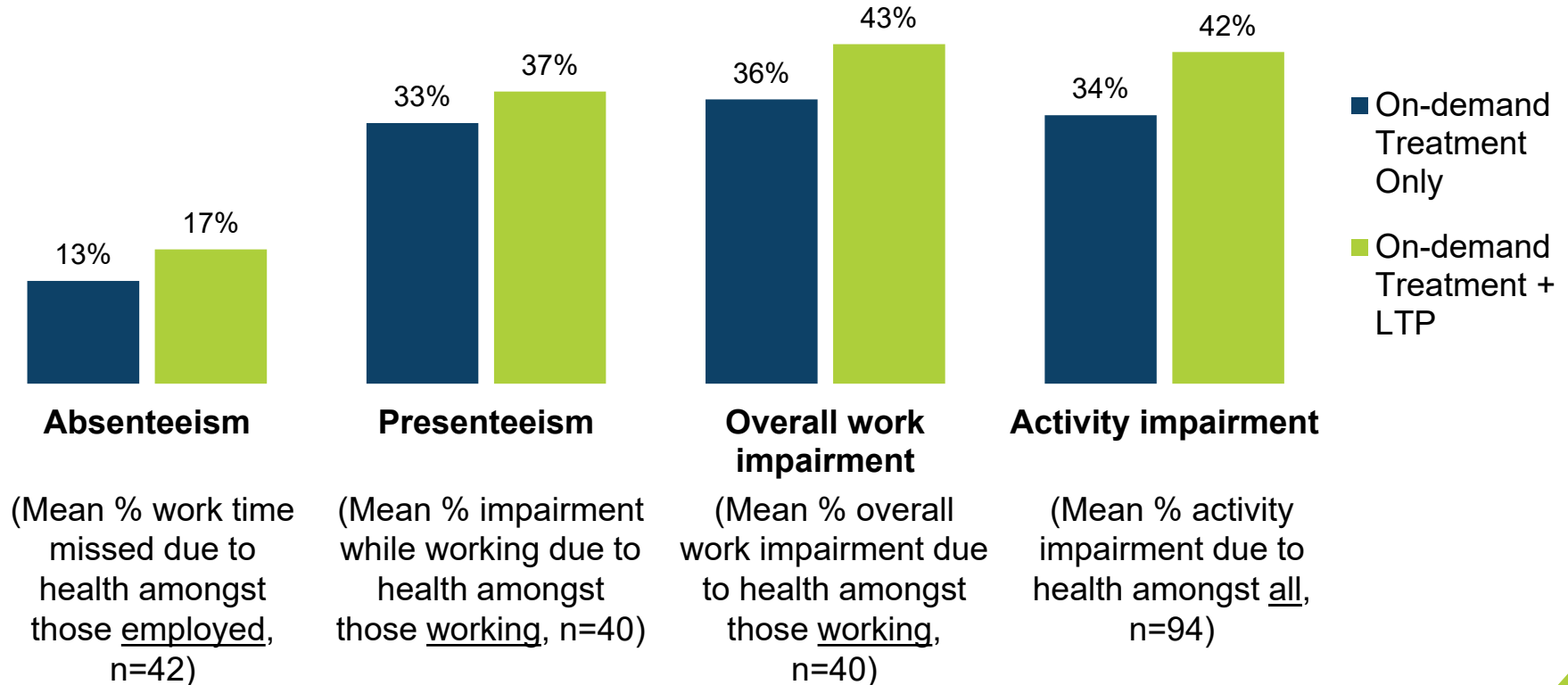
% of Employed Participants

Impact of Last Treated Attack on Ability to do Job



- Twenty (48%) participants were moderately to completely unable to do their job due to their last attack (46% On-demand; 50% LTP)

WPAI Results: Impact of Last HAE Attack on Ability to Work



Conclusions

- Treatment was frequently delayed and often attacks were moderate or severe at the time of treatment
- Despite treatment, HAE attacks were associated with activity impairment and impact on work lives of employed participants resulting in substantial:
 - impairments in their ability to work
 - absenteeism
 - reduced productivity
 - presenteeism
- The impact was substantial for both patients taking on-demand treatment only and those taking on-demand plus LTP
- Compliance with HAE treatment guidelines may reduce the negative impact of attacks on the work lives of employed participants