



Guideline Management of HAE: What's new and what's missing

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Disclosures

- ▶ CSL Behring- Advisory Board, Speakers Bureau
- ▶ Takeda- Advisory Board
- ▶ Biocryst- Advisory Board, Consultant
- ▶ Genentech- Advisory Board

Upon completion of this learning activity, participants should be able to:

- 1 Differentiate the current Hereditary Angioedema (HAE) guidelines and integrate updates into clinical practice.
- 2 Recognize the new options for therapy and how their use contributes to the guidelines for treating HAE.
- 3 Apply recommended monitoring guidelines

HAE Guidelines

What's New

- ▶ New treatments with suggested first and second-line therapies
- ▶ Evaluation and treatment considerations based on classification of HAE
- ▶ Special considerations for children and women with HAE
- ▶ Updates in recommended monitoring plan

What's Missing

- ▶ What are best tools to assess burden of illness, QoL/HRQoL
- ▶ Evaluation and management of normal complement HAE- are the guidelines enough in the real world ?
- ▶ Additional monitoring recommendations ?

HAE Guidelines

World Allergy Organization (WAO)¹

- Evaluate patients for long-term prophylaxis every visit
- Criteria: Individualized, Severely Symptomatic, Frequency, QoL, Failure to achieve control, consider patient preference

European Academy of Allergy & Immunology (EAACI)¹

HAE International Working Group (HAWK)²

- 12 moderate/severe attacks/year or >24 days/year affected by HAE
- Benefit must outweigh risks

Joint Task Force on Practice Parameters (JTFPP)³

American Academy of Allergy, Asthma, & Immunology (AAAAI)³

Joint Council of Allergy, Asthma & Immunology (JCAAI)³

American College of Allergy, Asthma & Immunology (ACAAI)³

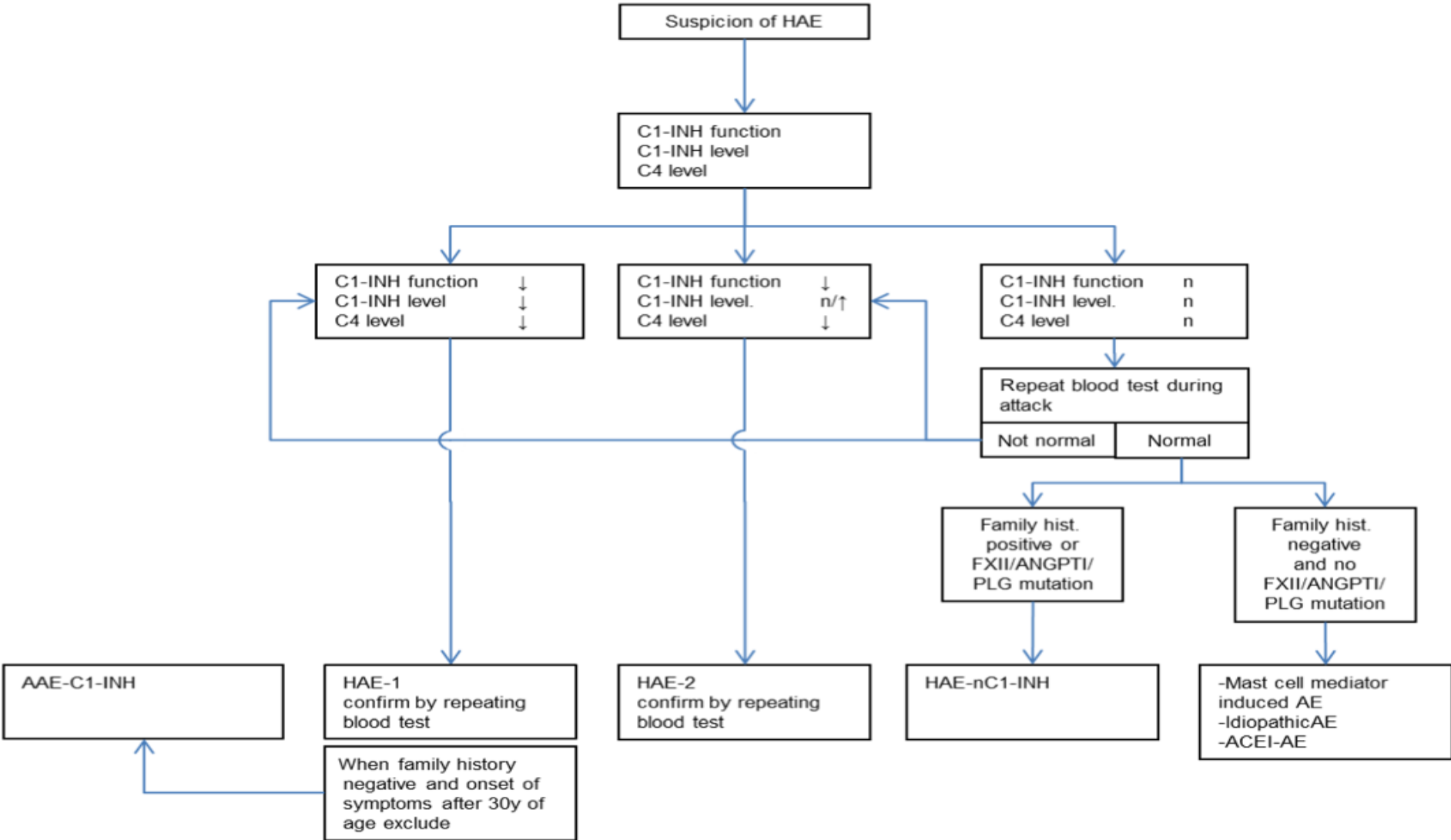
- Patients not managed with on-demand therapy should be considered for LTP
- Factors: Attack Frequency, Attack Severity, Location of Attacks, Access to Care, Comorbid Conditions, Patient Preference

US HAE Association Medical Advisory Board 2020 (US HAEA MAB)⁴

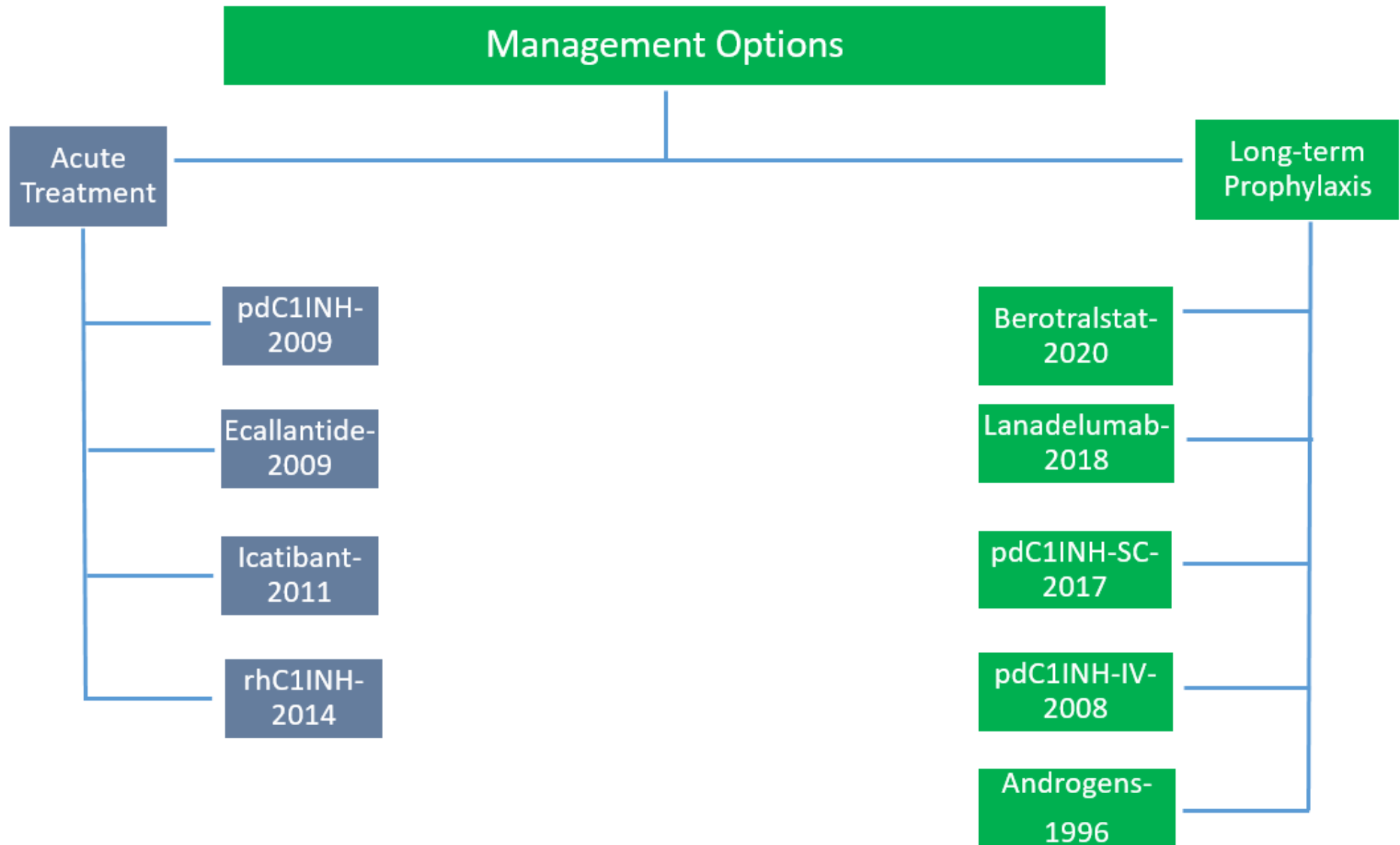
- Individualized / No rigid criteria
- Consider Attack Frequency & Severity, Comorbid Conditions, Access to emergent care, and Patient Experience/Preference

1) Maurer, M, Magerl, M, Ansotegui, I, Aygören Pürsün, E, Betschel, S, Bork, K, Bowen, T, Balle Boysen, H, Farkas, H, Grumach, A, Hide, M, Katelaris, C, Lockey, R, Longhurst, H, Lumry, W, Martínez-Saguer, I, Moldovan, D, Nast, A, Pawankar, R, Potter, P, et al. The international WAO/EAACI guideline for the management of hereditary angioedema – the 2017 revision and update. *Allergy* 2018; 73: 1575–96. 2) Cicardi M, Bork K, Caballero T, Craig T, Li HH, Longhurst H, Reshef A, Zuraw B on behalf of HAWK (Hereditary Angioedema International Working Group). Evidence-based recommendations for the therapeutic management of angioedema owing to hereditary C1 inhibitor deficiency: consensus report of an International Working Group. *Allergy* 2012; 67: 147–157. 3) Zuraw BL, Bernstein JA, Lang DM, et al. A focused parameter update: hereditary angioedema, acquired C1 inhibitor deficiency, and angiotensin-converting enzyme inhibitor-associated angioedema. *J Allergy Clin Immunol*. 2013;131(6):1491-1493 4) Busse PJ et al. US Hereditary Angioedema Association Medical Advisory Board 2020 recommendations for the management of hereditary angioedema due to C1

HAE Diagnostic Algorithm



Treatment of HAE: Acute or Prophylactic ?



HAE Prophylactic Treatment

Attribute	CINRYZE® ^{1,2}	HAEGARDA® ³	TAKHZYRO® ^{4,5}	Orladeyo® ⁶
Mechanism of Action	<ul style="list-style-type: none"> C1-INH plasma 	<ul style="list-style-type: none"> C1-INH plasma 	<ul style="list-style-type: none"> Monoclonal antibody that inhibits plasma kallikrein 	<ul style="list-style-type: none"> Oral Kallikrein Inhibitor
Indication	<ul style="list-style-type: none"> ≥6 yo 	<ul style="list-style-type: none"> ≥6 yo 	<ul style="list-style-type: none"> ≥12 yo 	<ul style="list-style-type: none"> ≥12 yo
Dosage and Administration	<ul style="list-style-type: none"> 1000 U twice weekly <p>Adult and adolescent</p> <ul style="list-style-type: none"> Doses up to 2,500 U (not >100 U/kg) every 3 or 4 days may be considered 	<ul style="list-style-type: none"> 60 IU/kg subcutaneous injection twice weekly 	<ul style="list-style-type: none"> 2 mL subcutaneous injection every 2 weeks (300mg) Can consider every 4 weeks if patient is well-controlled 	<ul style="list-style-type: none"> 150mg, 110mg capsule daily
Route of Administration	<ul style="list-style-type: none"> Intravenous Reconstitution 	<ul style="list-style-type: none"> Subcutaneous Reconstitution 	<ul style="list-style-type: none"> Subcutaneous 	<ul style="list-style-type: none"> Oral
Storage	<ul style="list-style-type: none"> 36°F - 77°F 	<ul style="list-style-type: none"> Up to 86°F 	<ul style="list-style-type: none"> Refrigeration 	<ul style="list-style-type: none"> 68°F - 77°F
Pharmacokinetics	<ul style="list-style-type: none"> T_{max}: 3.9 ± 7.3 hours T_{1/2}: 56 ± 36 hours 	<ul style="list-style-type: none"> T_{max}: 59 hours T_{1/2}: 69 hours 	<ul style="list-style-type: none"> T_{max}: 4.1 days T_{1/2}: 15 days 	<ul style="list-style-type: none"> T_{max}: 5hours T_{1/2}: 96hrs

1) Cinryze (C1 Esterase Inhibitor [Human]) [package insert]. Shire ViroPharma Incorporated, Lexington, MA. 2016. 2) Lev Presents Results of Phase III Study Supporting Safety and Efficacy of Cinryze(TM) (C1 inhibitor) as Prophylactic Therapy for HAE [Press release]. Retrieved from <http://phx.corporate-ir.net/phoenix.zhtml?c=130944&p=irol-newsArticle&ID=1119890&highlight=>. 3) Haegarda. [package insert]. Kankakee, IL; CSL Behring LLC. 4) Takhzyro (lanadelumab-flyo) [prescribing information]. Lexington, MA: Shire LLC; 2018 ; Haegarda. [package insert]. Kankakee, IL; CSL Behring LLC ; Lev Pharmaceuticals. (2018, March 18). 5) Institute for Clinical and Economic Review. Prophylaxis for Hereditary Angioedema with Lanadelumab and C1 Inhibitors: Effectiveness and Value. Draft report. August 23, 2018. https://icer-review.org/wp-content/uploads/2018/03/ICER_HAE_Draft_Evidence_Report_082318.pdf. Accessed March 29, 2019. 6) Orladeyo (Berotralstat) [package insert]. Durham, NC: BioCryst Pharmaceuticals Inc.

Attribute	CINRYZE® ^{1,2}	HAEGARDA® ³	TAKHZYRO® ^{4,5}	Orladeyo® ⁶
Primary Efficacy: Reduction in attacks vs. Placebo	<ul style="list-style-type: none"> • Mean = 52% 	<ul style="list-style-type: none"> • Mean = 84% 	<ul style="list-style-type: none"> • Mean = 87% (q2 weeks dose) 	<ul style="list-style-type: none"> • Mean= 44%
Other Efficacy Endpoints	<ul style="list-style-type: none"> • Mean Severity of HAE Attacks (Score from 1 to 3) 1.3 versus 1.9 • Mean Duration of HAE Attacks (Days) 2.1 versus 3.4 • Days of Swelling: 10.1 versus 29.6 (66% reduction) 	<ul style="list-style-type: none"> • 83% with ≥ 50% reduction in attacks • 40% attack-free during treatment period 	<ul style="list-style-type: none"> • 83% reduction in mod to sev attacks • 44% attack free during treatment period • 87% reduction in rescue meds • Reduction in attacks (300mg q2weeks): <ul style="list-style-type: none"> • 100% with ≥50% • 89% with ≥70% • 67% with ≥90% 	<ul style="list-style-type: none"> • In subjects with <2 attacks/month 66% reduction in attacks • 50% of patients had >70% reduction in attacks
Side Effects / Tolerability ≥ 10%	<ul style="list-style-type: none"> • Headache (19%) • Nausea (18%) • Rash (10%) • Vomiting (10%) 	<ul style="list-style-type: none"> • Injection site reaction (35%) • Nasopharyngitis (19%) 	<ul style="list-style-type: none"> • Injection site reactions (56%) • URI (44%) • Headache (33%) • Myalgia (11%) 	<ul style="list-style-type: none"> • Abdominal Pain (16%) • Vomiting (12%) • Diarrhea (12%)
Warnings and Precautions	<ul style="list-style-type: none"> • Hypersensitivity reaction • Thromboembolic events • Transmissible infectious agents 	<ul style="list-style-type: none"> • Hypersensitivity reaction • Thromboembolic events • Transmissible infectious agents 	<ul style="list-style-type: none"> • Hypersensitivity reactions 	<ul style="list-style-type: none"> • Risk of QT Prolongation with Higher-Than-Recommended

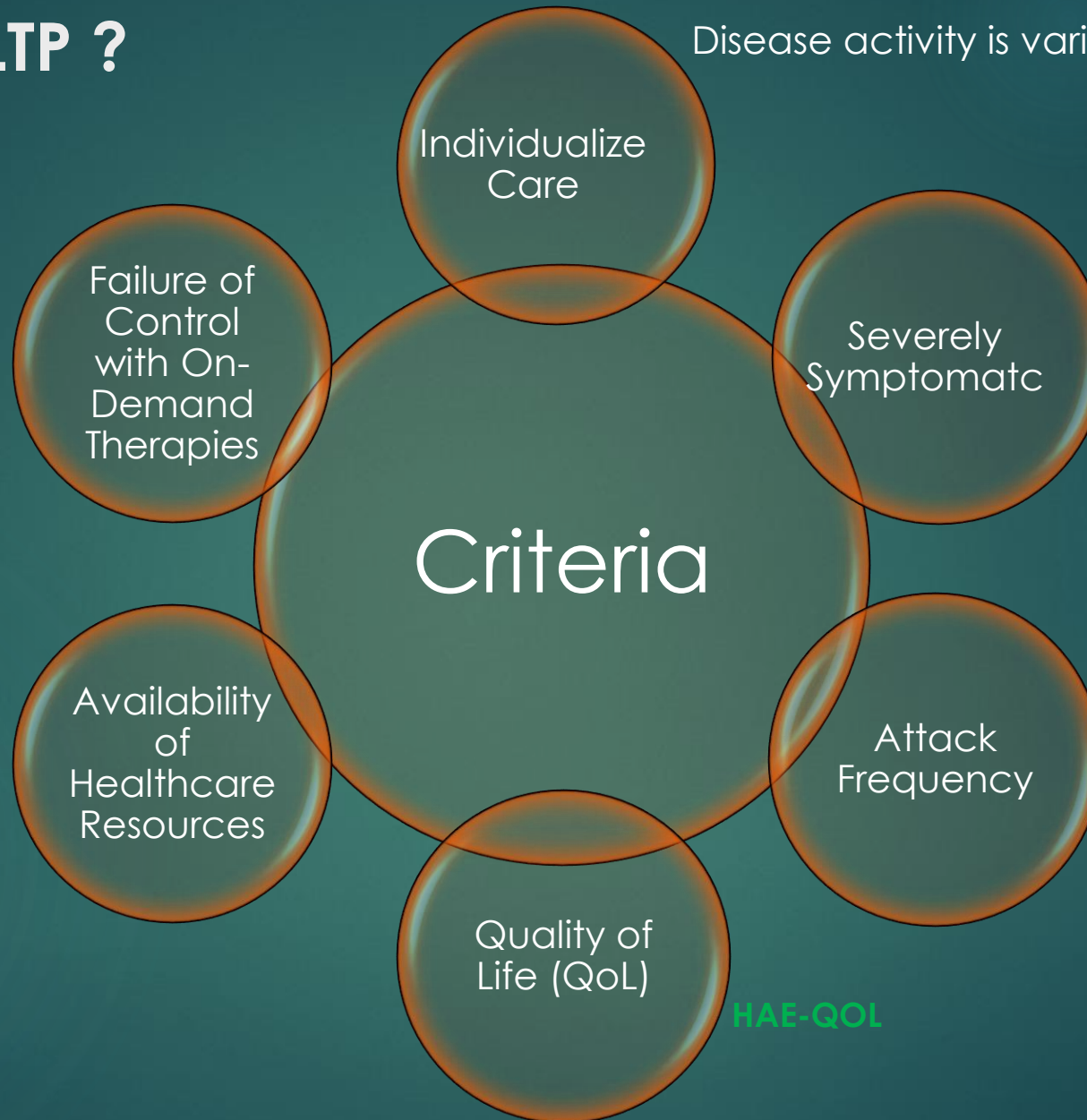
1) Cinryze (C1 Esterase Inhibitor [Human]) [package insert]. Shire ViroPharma Incorporated, Lexington, MA. 2016. 2) *Lev Presents Results of Phase III Study Supporting Safety and Efficacy of Cinryze(TM) (C1 inhibitor) as Prophylactic Therapy for HAE* [Press release]. Retrieved from <http://phx.corporate-ir.net/phoenix.zhtml?c=130944&p=irol-newsArticle&ID=1119890&highlight=>. 3) Haegarda. [package insert]. Kankakee, IL; CSL Behring LLC. 4) Takhzyro (lanadelumab-flyo) [prescribing information]. Lexington, MA: Shire LLC; 2018 ; Haegarda. [package insert]. Kankakee, IL; CSL Behring LLC ; Lev Pharmaceuticals. (2018, March 18). 5) Institute for Clinical and Economic Review. Prophylaxis for Hereditary Angioedema with Lanadelumab and C1 Inhibitors: Effectiveness and Value. Draft report. August 23, 2018. https://icer-review.org/wp-content/uploads/2018/03/ICER_HAE_Draft_Evidence_Report_082318.pdf. Accessed March 29, 2019. 6) Orladeyo (Berotralstat) [package insert]. Durham, NC:BioCryst Pharmaceuticals Inc

On-Demand vs LTP ?

Disease activity is variable over time²

Factors to Consider:⁵

- Attack frequency
- Attack severity
- Location of attacks
- Access to care
- Comorbidities
- Patient preference



Severity Definitions:

- Mild: Noticeable, no ADL impact
- Moderate: Intervention likely, negative ADL impact
- Severe: Intervention required, unable to perform ADLs³

Measures:

- Mean Symptom Complex Severity (MSCS) – sites effected, patients' assessment of severity of swelling⁴
- Angioedema activity score (AAS) – diary to document angioedema

HAWK Guidelines⁴

- 12 moderate/severe attacks per year or more than 24 days per year affected by HAE

HAE-QOL

1) Maurer, M, Magerl, M, Anotegui, I, Aygören Pürsün, E, Betschel, S, Bork, K, Bowen, T, Balle Boysen, H, Farkas, H, Grumach, A, Hide, M, Katelaris, C, Lockey, R, Longhurst, H, Lumry, W, Martinez-Saguer, I, Moldovan, D, Nast, A, Pawankar, R, Potter, P, et al. The international WAO/EAACI guideline for the management of hereditary angioedema – the 2017 revision and update. *Allergy* 2018; 73: 1575–96. 2) Zuraw BL. Hereditary angioedema. *N Engl J Med*. 2008;359:1027-1036. 3) Lumry WR, Castaldo AJ, Vernon MK, et al. The humanistic burden of hereditary angioedema: Impact on health-related quality of life, productivity, and depression. *Allergy Asthma Proc* 31:407-414, 2010. 4) Cicardi M, Bork K, Caballero T, Craig T, Li HH, Longhurst H, Reshef A, Zuraw B on behalf of HAWK (Hereditary Angioedema International Working Group). Evidence-based recommendations for the therapeutic management of angioedema owing to hereditary C1 inhibitor deficiency: consensus report of an International Working Group. *Allergy* 2012; 67: 147–157. 5) Zuraw BL, Bernstein JA, Lang DM, et al. A focused parameter update: hereditary angioedema, acquired C1 inhibitor deficiency, and angiotensin-converting enzyme inhibitors. *Ann Allergy Asthma Immunol*. 2012;108(4):491-492.

HAE type:

HAE-C1INH

HAE-nl-C1INH

HAE-C1INH subtypes

Type I HAE, characterized by deficient levels of C1INH protein and function

Type II HAE, characterized by the normal level of C1INH protein that is dysfunctional, resulting in diminished C1INH functional activity

Both type I and type II HAE are caused by mutations in the gene that encodes C1INH(SERPING1)

The estimated prevalence of type I and type II HAE is 1 per 50,000, suggesting that there are approximately 6000 affected individuals in the United States.

HAE-nl-C1INH subtypes^{1,2}

HAE-FXII - mutations in the gene encoding coagulation FXII

HAE-PLG - mutations in the gene encoding plasminogen

HAE-ANGPT1 - mutations the gene encoding angiotensin-1

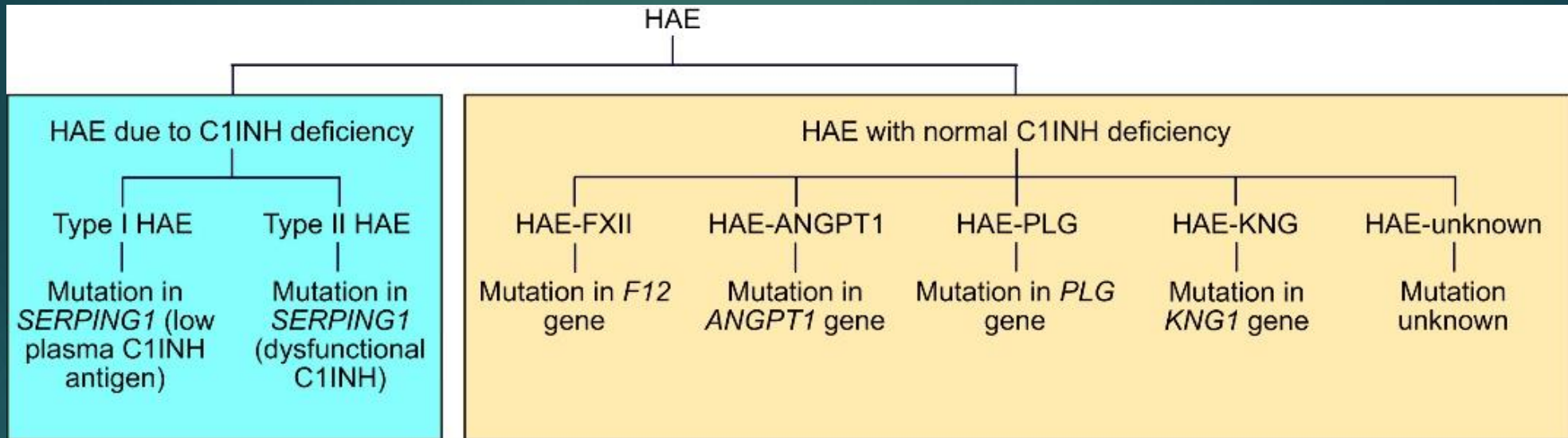
HAE-KNG1 - mutation in the kininogen 1 gene

HAE-MYOF-mutation in myoferlin gene

HAE-unknown (HAE-U) - mutation has not yet been defined.

¹Busse PJ et al. US Hereditary Angioedema Association Medical Advisory Board 2020 recommendations for the management of hereditary angioedema due to C1 inhibitor deficiency. J Allergy Clin Immunol Pract 2020 Jan;9(1):132-150.

²Bork K et al, Clinical features of genetically characterized types of hereditary angioedema with normal C1 inhibitor :a systematic review of qualitative evidence. Orphanet Journal of Rare Diseases 15 Article No. 289 (2020)



HAEA Medical Advisory Board 2020 Guidelines for the Management of Hereditary Angioedema

Journal of Allergy and Clinical Immunology: In Practice.

Busse, Paula J., MD; Christiansen, Sandra C., MD; Riedl, Marc A., MD, MS; Banerji, Aleena, MD; Bernstein, Jonathan A., MD;

Castaldo, Anthony J., MPA; Craig, Timothy, DO; Davis-Lorton, Mark, MD; Frank, Michael M., MD; Li, H. Henry, MD, PhD;

Lumry, William R., MD; Zuraw, Bruce L., MD. Published December 31, 2020. Volume 9, Issue 1. Pages 132-150.e3. © 2020.

Laboratory testing is necessary to identify or exclude HAE-C1INH

- Screening- C4 (Sensitivity 81% to 96%)
- Confirmation/Classification: C1INH quantitative and functional levels are low (<50% of normal) in type I HAE, whereas only the functional level is low (<50% of normal) in type II HAE.
- Genetic sequencing for SERPING1 mutations –special situations

Laboratory diagnosis of HAE-nI-C1INH

No validated biochemical test to confirm the diagnosis.

“Genetic testing may be helpful in confirming HAE-nI-C1INH”

The diagnosis of HAE-nI-C1INH frequently must be made based on clinical criteria as previously published and refined

HAE-nI-C1INH

Required

A history of recurrent angioedema in the absence of concomitant urticaria and no concomitant use of medication known to cause angioedema

Required


Documented normal or near normal C4, C1-INH antigen, and C1-INH function

Either (at least 1 required)

- (1) Demonstration of a mutation associated with the disease;
- (2) **A positive family history of recurrent angioedema** and documented lack of efficacy of high-dose antihistamine therapy (ie, cetirizine at 40 mg/d or the equivalent) for at least 1 mo or an interval expected to be associated with 3 or more attacks of angioedema, whichever is longer

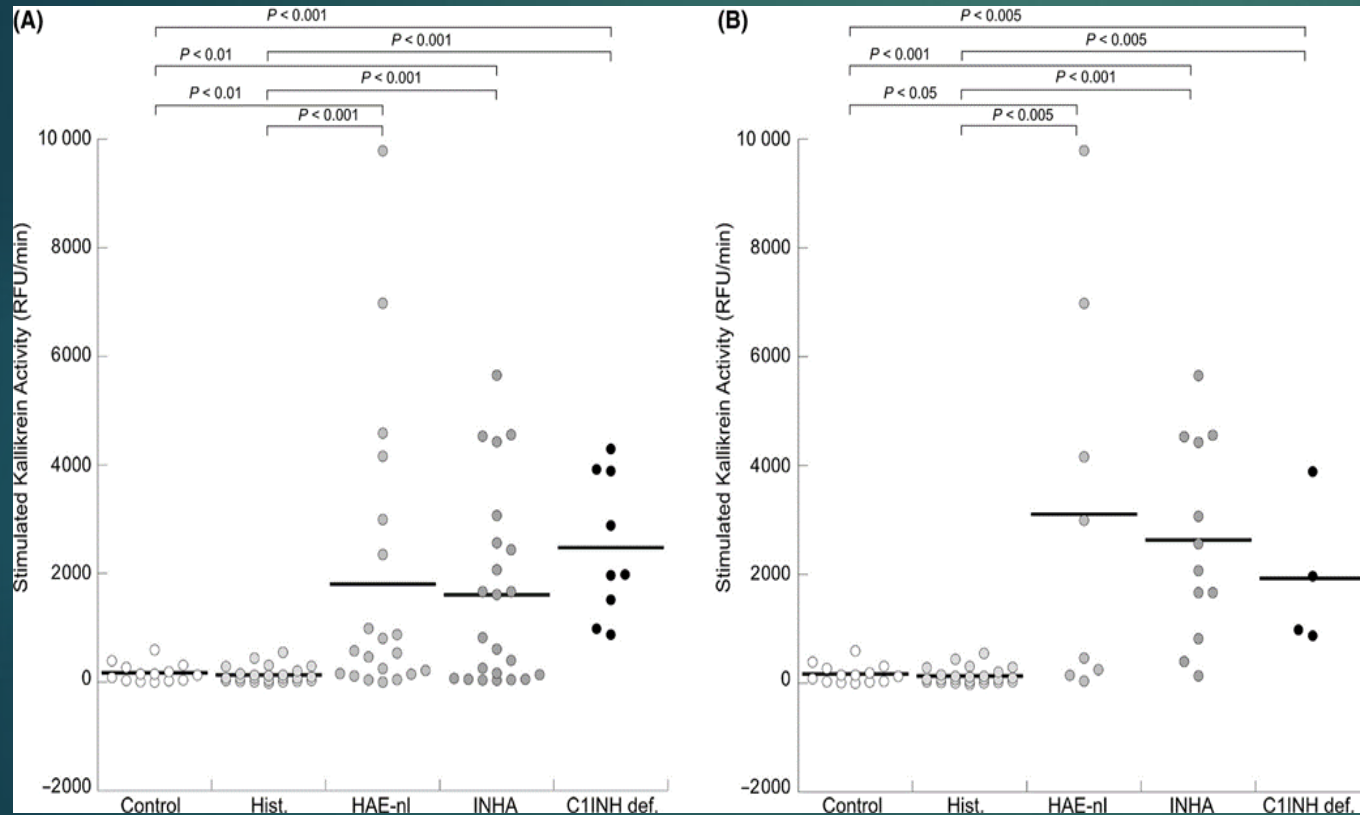
Supportive

- (1) **A history of rapid and durable response to a bradykinin-targeted medication;**
- AND (2) Predominant documented visible angioedema; or in patients with predominant abdominal symptoms, evidence of bowel wall edema documented by CT or MRI**



Although not currently commercially available, stimulated kallikrein activity assays have been studied in patients with HAE-U and demonstrated high sensitivity and specificity for differentiating these patients from mast cell–mediated angioedema and normal controls.

Threshold-stimulated kallikrein activity distinguishes bradykinin- from histamine-mediated angioedema



- ▶ Stimulated plasma kallikrein activity was significantly increased in both HAE-nl-C1INH (1804 ± 600) and INHA (1579 ± 371) subjects compared to non-swelling controls (171 ± 46) and histaminergic angioedema (133 ± 30) subjects.
- ▶ Using a threshold cut-off based on the normal controls, HAE-nl-C1INH and INHA subjects could be differentiated from histaminergic angioedema subjects with high sensitivity (negative predictive value 86%-89%) and specificity (positive predictive value 80%-100%)..

Diagnosis of HAE in children

Early symptom onset has been found to correlate with more severe HAE in later life.^{1,2}

Early symptom onset also tended to have a greater delay in diagnosis.^{1,2}

Screening first-degree relatives of affected patients is recommended

The preferred LTP treatment in children is pdC1INH.

¹Christiansen SC, Davis DK, Castaldo AJ, Zuraw BL. Pediatric Hereditary Angioedema: Onset, Diagnostic Delay, and Disease Severity. *Clinical Pediatrics*. 2016;55(10):935-94

²Michael M. Frank, et al Management of Children With Hereditary Angioedema Due to C1 Inhibitor Deficiency
US Hereditary Angioedema Association Medical Advisory Board
Pediatrics Nov 2016,

Issues in the Management of HAE in Women

Although HAE-C1INH is equally prevalent in women and men, symptoms may be more severe in women due to exacerbation from estrogen.

Many women identify menstruation, ovulation, pregnancy, and use of estrogen-containing medications as attack triggers.¹

C1INH is the preferred treatment in pregnancy due to its safety during pregnancy documented by several case reports and observational studies.^{2,3,4}

1 Bouillet L et al. disease expression in women with hereditary angioedema: Am J Obstet Gynecol 2008;199;pp. 484.e1-484.e4.

2 Gonzalez-Quevedo T, et al. Management of pregnancy and delivery in patients with hereditary angioedema due to C1 inhibitor deficiency. J Invest Allergol Clin Immunol 2016;26:161-7.

3 Martinez-Saguer I, Rusicke E, Aygoren-Pursun E, Heller C, Klingebiel T, Kreuz W. Characterization of acute hereditary angioedema attacks during pregnancy and breast-feeding and their treatment with C1 inhibitor concentrate. Am J Obstet Gynecol 2010;203:131.e1-7.

4 Caballero T, Canabal J, Rivero-Paparoni D, Cabanas R. Management of hereditary angioedema in pregnant women: a review. Int J Womens Health 2014;6:839-48.

Recommended monitoring updates – What's new?

Review long-term prophylaxis options

Discuss anticipated pregnancy

Review medication self-administration techniques

Monitor long-term prophylactic therapy (if applicable)

Review preventative efficacy

Monitor for adverse effects

Adjust dosing or preventative agent as needed

HAE Long-term Prophylaxis

GOAL

Reduce the frequency and severity of attacks²
Reduce the burden of disease¹

1) Maurer, M, Magerl, M, Ansotegui, I, Aygören Pürsün, E, Betschel, S, Bork, K, Bowen, T, Balle Boysen, H, Farkas, H, Grumach, A, Hide, M, Katelaris, C, Lockey, R, Longhurst, H, Lumry, W, Martinez-Saguer, I, Moldovan, D, Nast, A, Pawankar, R, Potter, P, et al. The international WAO/EAACI guideline for the management of hereditary angioedema – the 2017 revision and update. *Allergy* 2018; 73: 1575– 96.2) 5. Cicardi M, Aberer W, Banerji A, Bas M, Bernstein JA, Bork K, et al. Classification, diagnosis, and approach to treatment for angioedema: consensus report from the Hereditary Angioedema International Working Group. *Allergy*. 2014;69:602–616

What's Missing ?-

A guideline for the guideline

- ▶ “Assessing impact of HAE on QOL”

Anxiety and Depression-

- From attacks/fear of attacks? Genetic disease?

Prophylactic therapy with SC C1INH or lanadelumab, which significantly decrease attack frequency, led to significant improvements in validated anxiety and depression or QoL scores ^{1,2,3}

1 Longhurst H, Cicardi M, Craig T, Bork K, Grattan C, Baker J, et al. Prevention of hereditary angioedema attacks with a subcutaneous C1 inhibitor. *N Engl J Med* 2017;376:1131-40

2 Lumry WR, Craig T, Zuraw B, Longhurst H, Baker J, Li HH, et al. Health-related quality of life with subcutaneous C1-inhibitor for prevention of attacks of hereditary angioedema. *J Allergy Clin Immunol Pract* 2018;6:1733-41.

3. Craig T, Zuraw B, Longhurst H, Cicardi M, Bork K, Grattan C, et al. Long-term outcomes with subcutaneous C1-inhibitor replacement therapy for prevention of hereditary angioedema attacks. *J Allergy Clin Immunol Pract* 2019;

Assessing impact on daily activities

- ▶ Assessing any restriction or modifications of life due to HAE

Effective prophylactic therapy significantly decreased the overall work impairment in patients. ¹

1. Lumry W.R., Craig T., Zuraw B., Longhurst H., Baker J., Li H.H., et. al.: Health-related quality of life with subcutaneous C1-inhibitor for prevention of attacks of hereditary angioedema. J Allergy Clin Immunol Pract 2018; 6: pp. 1733-1741 .

Assessing Economic Cost

- ▶ Economic cost can be direct (medications, ED, Hospital costs) or indirect (missed work, school, loss of productivity)

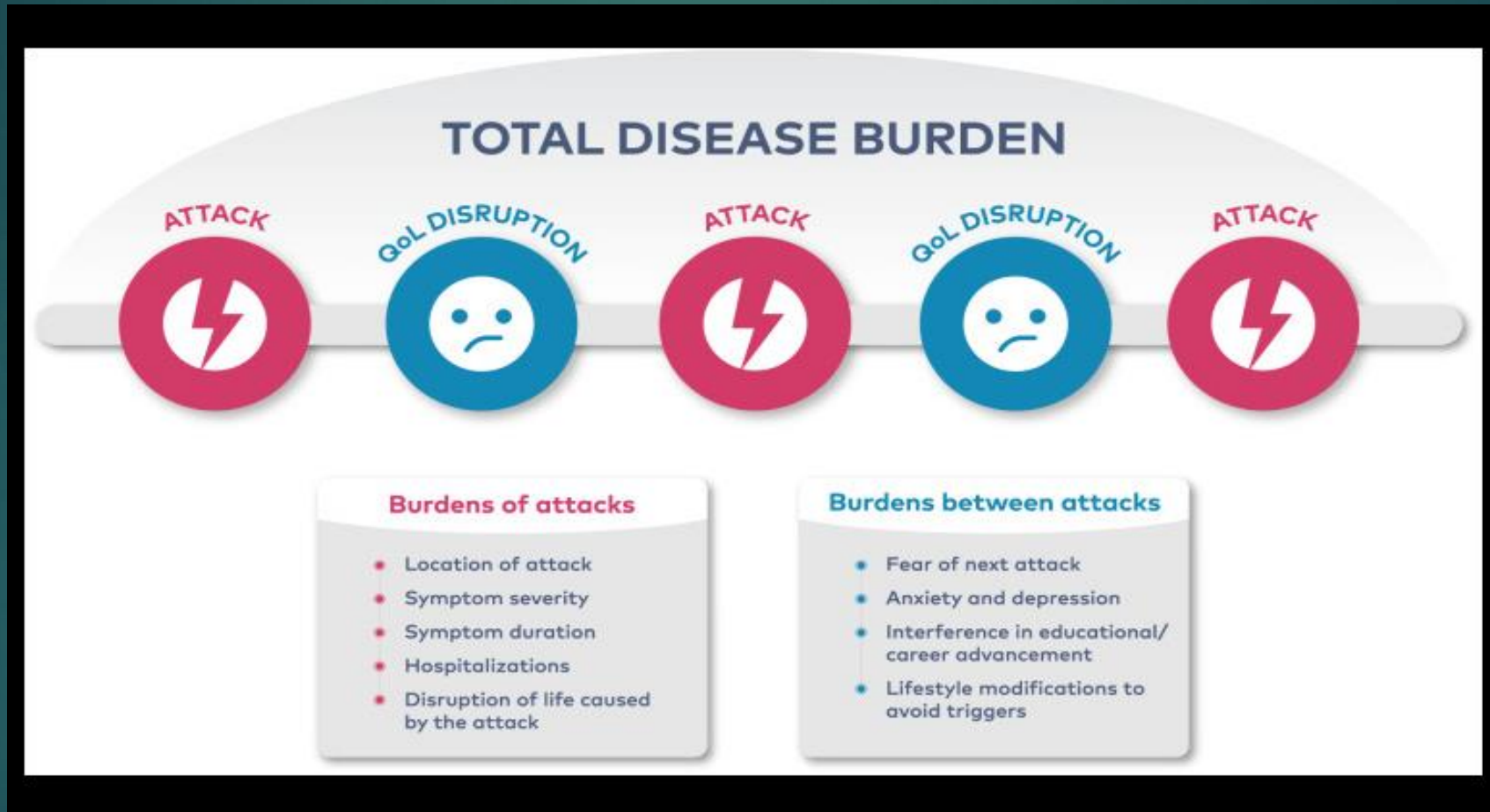
A study examining the economics of HAE treatments found that the newest prophylactic agents lead to clinically significant improvements in QoL and avoid the high direct (medical) and indirect (socioeconomic) costs associated with the on-demand only treatment model¹

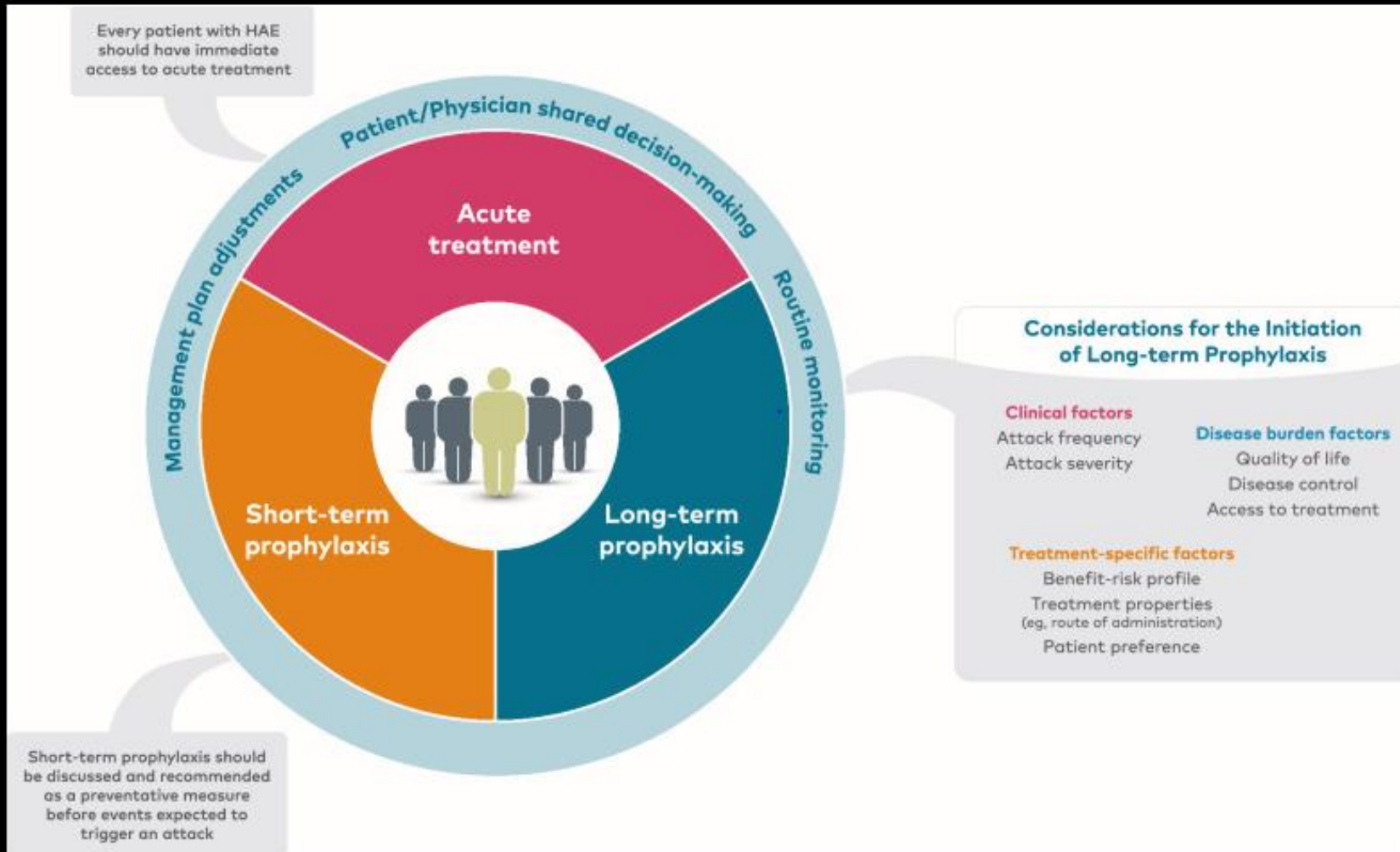
1 Zuraw B.L.: Cost-effectiveness of prophylactic medications for the treatment of hereditary angioedema due to C1 inhibitor deficiency: a real-world U.S. perspective. J Manag Care Spec Pharm 2019; 25: pp. 148-151

Assessing HRQoL

	HAE-AS	AAS	HAE-QoL	AE-QoL
Number of items (questions)	12 (once)	1–6 (everyday)	25 (once)	17 (once)
Recall period	6 months	1 day	6 months	4 weeks
Applicable in HAE 1/2	+	+	+	+
Applicable in other forms of recurrent angioedema	–	+	–	+
Assessment	Retrospective	Prospective	Retrospective	Retrospective
High level of patient compliance required	–	+	–	–
Clinical important difference published	–	+	–	+
Cost-free use in routine patient management and investigator-initiated clinical research	+	+	+	+
Different language versions available ^a	American-English, Spanish	American-English, Azeri, Canadian-English, Canadian-French, Danish, Dutch, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Macedonian, Mexican-Spanish, Polish, Portuguese, Romanian, Russian, Slovakian, Spanish, Swedish, Turkish	Argentinien-Spanish, Austrian-German, Brazilian-Portuguese, Canadian-English, Canadian-French, Danish, French, German, Greek, Hebrew, Hungarian, Italian, Macedonian Mandarin-Chinese, Polish, Romanian, Spanish, US-English, UK-English	American-English, Azeri, Canadian-English, Canadian-French, Danish, Dutch, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Jordan-Arabic, Macedonian, Mexican-Spanish, Polish, Portuguese, Puerto Rican-Spanish, Romanian, Russian, Slovakian, Spanish, Swedish, Turkish

Attack frequency and severity are insufficient markers of disease severity unless they are evaluated in the broader context of the effect on an individual patient's QoL





Bork K, Anderson JT, Caballero T, Craig T, Johnston DT, Li HH, Longhurst HJ, Radojicic C, Riedl MA. Assessment and management of disease burden and quality of life in patients with hereditary angioedema: a consensus report. *Allergy Asthma Clin Immunol.* 2021 Apr 19;17(1):40.

“Patient Perspectives on the Treatment Burden of Injectable Medication Administration for Hereditary Angioedema”

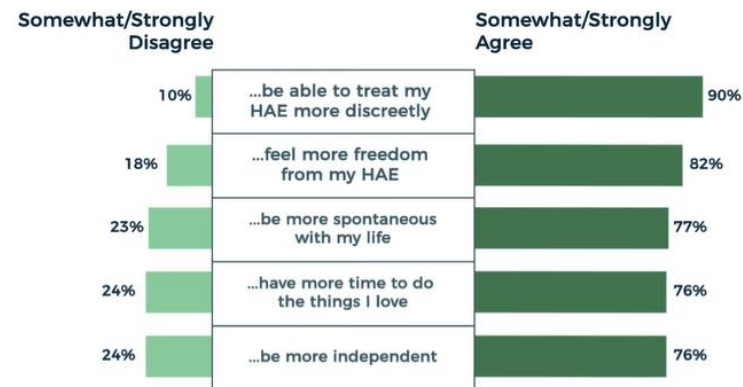
Nearly all (93%) reported routinely using prophylactic treatment via injections or infusions, and more than a third (38%) noted a need to avoid social activities due to their disease.

Almost half (47%) of the patients who recently started on a prophylactic for HAE attacks noted a need to rearrange life events to accommodate the medication, and more than half (58%) acknowledged being tired of repeat injections or infusions.

Still, almost nine in 10 said they had learned to tolerate difficult aspects of their treatment, and were satisfied with their current therapy regimen

Figure 4. Agreement with statements regarding a once-daily oral HAE medication (n=75)

If I were prescribed a once daily pill to prevent (prophylaxis) HAE attacks, I would...*



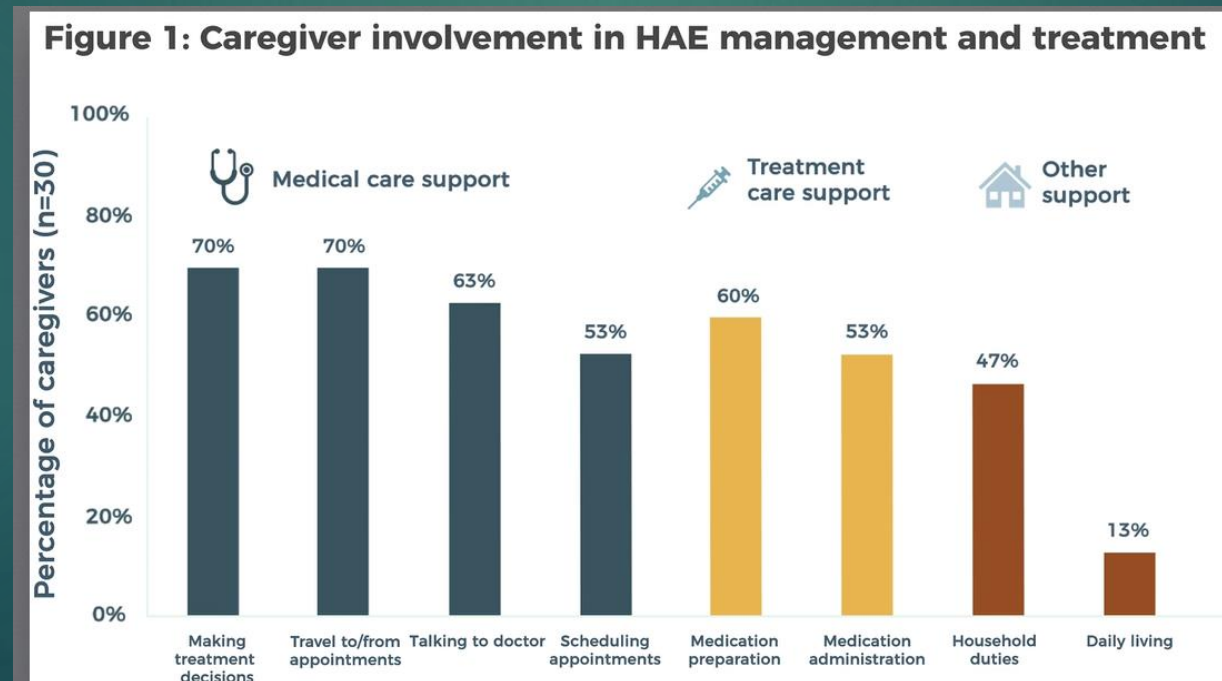
“Prophylactic Treatment Burden: Assessment by Caregivers of Patients with Hereditary Angioedema”

Most (77%) had HAE themselves, and more than half (53%) were parents of a child with the disease.

More than half of surveyed caregivers agreed it was challenging to learn to properly administer the medication, especially to themselves (55%) and to be comfortable using needles (61%).

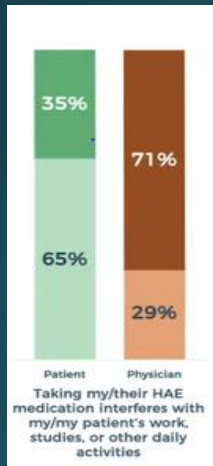
Most (86%) also agreed the patient they cared for had learned to tolerate treatment and were satisfied with it, but felt they would be open to try more convenient options.

More than half (71%) agreed those in their care were tired of repeat injections or infusions.



“Understanding Differences in Perceptions of Hereditary Angioedema Treatment Burden May Improve Patient-Physician Treatment Care Dialogue”

- Nearly all (94%) physicians agreed that alternative prophylactic treatment options are needed. More than half also believed their patients would tire of repeat injections or infusions (70%),
- Physician’s reported Injectable treatment would interfere with aspects of their lives (71%).



Survey findings also demonstrated doctors tend to underestimate the time needed to prepare and administer prophylactic treatments.

A strong discordance was found between physicians and patients regarding who initiated conversations on challenges with medication use: 72% of patients surveyed said they started these conversations, and 80% of physicians said the initiative was theirs.

Summary

- ▶ With the introduction of new subcutaneous and oral prophylactic therapies, these significant advances allow for expanded discussion of LTP options.
- ▶ HAE-nI-C1INH continues to be a diagnostic challenge with no commercially available biomarker. Clinical criteria have been suggested in guidelines but the subjective nature of patient reporting may lead to physician-to-physician disagreement.
- ▶ The emphasis on assessing “Burden of Illness” is difficult to fully evaluate even with current recommended monitoring guidelines. Validated, user - friendly tools should be incorporated in the management and monitoring of these patients.

Thank You!