

# **HISTORY OF THE INTERNATIONAL GUIDELINES ON HEREDITARY ANGIOEDEMA (HAE) – A RARE DISEASE**

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## DISCLOSURES

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- I have received consultancy/speaker fees and honoraria from Shire, Swedish Orphan Biovitrum, BioCryst, Pharming Octapharma and CSL Behring, as well as research grants from Shire and CSL Behring

# CONCEPTION - THE WORKSHOP

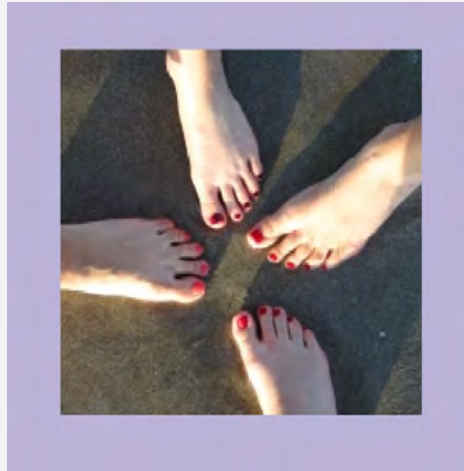
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Until 1999, only sporadic lectures were presented at different scientific events on HAE.

## FOUR LEGS GOOD...

RESEARCHERS

PHARMA  
COMPANIES



MEDICAL  
PROFESSIONALS

PATIENTS

VISEGRAD

1999

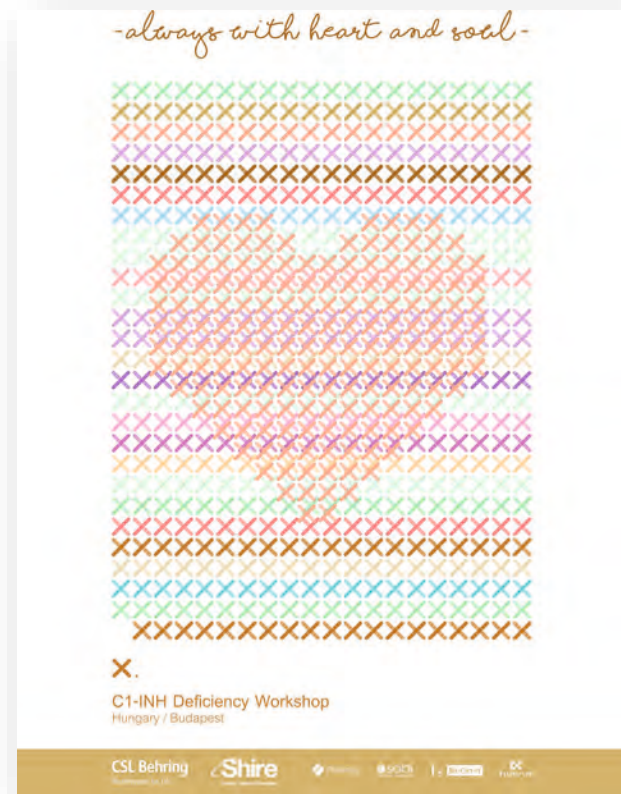
41	PARTICIPANTS
13	COUNTRIES
6	SESSIONS
12	SPEAKERS

VS.

BUDAPEST

2017

351	PARTICIPANTS
42	COUNTRIES
9	SESSIONS
87	SPEAKERS



# THE MOST IMPORTANT INCREMENTS OF THE WORKSHOP



HAE

Organization

News & Events

Resources



## Who is HAEi

HAEi is the international umbrella organization for the world's Hereditary Angioedema (HAE) patient groups.

Our organization is a global non-profit network of patient associations and we are dedicated to raising awareness of C1-inhibitor deficiencies around the world.

We strive to improve time to diagnosis and facilitate access to and reimbursement of life saving HAE therapies, which will enable lifelong health for all patients – no matter where they live.

Prevalence of HAE is still unknown. However, we expect the global prevalence of HAE to be approximately 1 in 30,000, which means that around a quarter million people worldwide suffer from this rare and potentially life threatening deficiency.



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# THE METHOD FOR DEVELOPMENT HAE GUIDELINES

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## A GROUP OF HAE EXPERTS

- drafts a consensus or guideline
- identify, summarize, and evaluate the highest-quality evidence from well-designed and conducted research, as well as the latest data
- presents their recommendations at a *roundtable discussion* held at the Workshop
- the recommendations are voted by the attendees on the spot
- after the Workshop, the manuscript is circulated among the participants
  - once all the opinions have been taken into account and harmonized, an expert consensus is published



# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

*Rapid publication*

## **Canadian 2003 International Consensus Algorithm for the Diagnosis, Therapy, and Management of Hereditary Angioedema**

Tom Bowen, MD, FRCPC,<sup>a</sup> Marco Cicardi, MD (on behalf of PREHAEAT),<sup>b\*</sup> Henriette Farkas, MD PhD,<sup>c</sup> Konrad Bork, MD,<sup>d</sup> Wolfhart Kreuz, MD,<sup>e</sup> Lorenza Zingale, MD,<sup>b</sup> Lilian Varga, PhD,<sup>c</sup> Inmaculada Martinez-Saguer, MD,<sup>e</sup> Emel Aygören-Pürsün, MD,<sup>e</sup> Karen Binkley, MD FRCPC,<sup>f</sup> Bruce Zuraw, MD,<sup>g</sup> Alvin Davis, III, MD,<sup>h</sup> Jacques Hebert, MD, FRCPC,<sup>i</sup> Bruce Ritchie, MD, FRCPC,<sup>j</sup> Jeanne Burnham,<sup>k</sup> Anthony Castaldo,<sup>l</sup> Alejandra Menendez,<sup>m</sup> Istvan Nagy,<sup>n</sup> George Harmat, MD, PhD,<sup>ee</sup> Christoph Bucher, MD,<sup>o</sup> Gina Lacuesta, MD, FRCPC,<sup>p</sup> Andrew Issekutz, MD, FRCPC,<sup>q</sup> Richard Warrington, MB, PhD, FRCPC,<sup>r</sup> William Yang, MD, FRCPC,<sup>s</sup> John Dean, MBBS, FRCPC,<sup>t</sup> Amin Kanani, MD, FRCPC,<sup>u</sup> Donald Stark, MD, FRCPC,<sup>v</sup> Christine McCusker, MD, FRCPC,<sup>w</sup> Eric Wagner, PhD,<sup>w</sup> Georges-Etienne Rivard, MD, FRCPC,<sup>w</sup> Eric Leith, MD, FRCPC,<sup>x</sup> Ellie Tsai, MD, FRCPC,<sup>y</sup> Michael MacSween, MD, FRCPC,<sup>p</sup> John Lyanga, MD, FRCPC,<sup>z</sup> Bazir Serushago, MD, FRCPC,<sup>aa</sup> Art Leznoff, MD, FRCPC,<sup>bb</sup> Susan Wasserman, MD, FRCPC,<sup>cc</sup> and Jean de Serres, MD<sup>dd</sup> *Calgary, Edmonton, and Claresholm, Alberta, Canada, Milan, Italy, Budapest, Hungary, Mainz and Frankfurt, Germany, Toronto, Ottawa, Oakville, Kingston, Windsor, and Hamilton, Ontario, Canada, La Jolla, Calif, Boston, Mass, Quebec City and Montreal, Quebec, Canada, Annandale, Va, Buenos Aires, Argentina, Zurich, Switzerland, Halifax, Nova Scotia, Canada, Winnipeg, Manitoba, Canada, and Vancouver, British Columbia, Canada*

## THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

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# **Hereditary angioedema: a current state-of-the-art review, VII: Canadian Hungarian 2007 International Consensus Algorithm for the Diagnosis, Therapy, and Management of Hereditary Angioedema**

Tom Bowen, MD, FRCPC; Marco Cicardi, MD; Konrad Bork, MD; Bruce Zuraw, MD; Mike Frank, MD; Bruce Ritchie, MD, FRCPC; Henriette Farkas, MD, PhD, DSc; Lilian Varga, PhD; Lorenza C. Zingale, MD; Karen Binkley, MD, FRCPC; Eric Wagner, PhD; Peggy Adomaitis; Kristylea Brosz, BSc; Jeanne Burnham; Richard Warrington, MB, PhD, FRCPC; Chrystyna Kalicinsky, MD, FRCPC; Sean Mace, MD, FRCPC; Christine McCusker, MD, FRCPC; Robert Schellenberg, MD, FRCPC; Lucia Celeste; Jacques Hebert, MD, FRCPC; Karen Valentine, MD, FRCPC; Man-Chiu Poon, MD, FRCPC; Bazir Serushago, MD, FRCPC; Doris Neurath, BSc, PharmART; William Yang, MD, FRCPC; Gina Lacuesta, MD, FRCPC; Andrew Issekutz, MD, FRCPC; Azza Hamed, MD, FRCPC; Palinder Kamra, MD, FRCPC; John Dean, MBBS, FRCPC; Amin Kanani, MD, FRCPC; Donald Stark, MD, FRCPC; Georges-Etienne Rivard, MD, FRCPC; Eric Leith, MD, FRCPC; Ellie Tsai, MD, FRCPC; Susan Wasserman, MD, FRCPC; Paul K. Keith, MD, FRCPC; David Page; Silvia Marchesin; Hilary J. Longhurst, MA, MRCP, PhD, MRCPath; Wolfram Kreuz, MD, PhD; Eva Rusicke, MD; Inmaculada Martinez-Saguer, MD; Emel Ayygören-Pürsün, MD; George Harnat, MD, PhD; George Füst, MD, PhD, DSc; Henry Li, MD, PhD; Laurence Bouillet, MD, PhD; Teresa Caballero, MD, PhD; Dumitru Moldovan, PhD, MD; Peter J. Späth, PhD; Sara Smith-Foltz; Istvan Nagy; Erik W. Nielsen, MD, PhD; Christoph Bucher, MD; Patrik Nordenfelt, MD; and Zhi Yu Xiang, MD



# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

Bowen *et al. Allergy, Asthma & Clinical Immunology* 2010, **6**:24  
<http://www.aacjournal.com/content/6/1/24>



ALLERGY, ASTHMA & CLINICAL  
IMMUNOLOGY

REVIEW

Open Access

## 2010 International consensus algorithm for the diagnosis, therapy and management of hereditary angioedema

Tom Bowen<sup>1\*</sup>, Marco Cicardi<sup>2</sup>, Henriette Farkas<sup>3</sup>, Konrad Bork<sup>4</sup>, Hilary J Longhurst<sup>5</sup>, Bruce Zuraw<sup>6</sup>, Emel Aygoeren-Pürsün<sup>7</sup>, Timothy Craig<sup>8</sup>, Karen Binkley<sup>9</sup>, Jacques Hebert<sup>10</sup>, Bruce Ritchie<sup>11</sup>, Laurence Bouillet<sup>12</sup>, Stephen Betschel<sup>9</sup>, Della Cogar<sup>13,14</sup>, John Dean<sup>15</sup>, Ramachand Devaraj<sup>16</sup>, Azza Hamed<sup>17</sup>, Palinder Kamra<sup>17</sup>, Paul K Keith<sup>18</sup>, Gina Lacuesta<sup>19</sup>, Eric Leith<sup>20</sup>, Harriet Lyons<sup>13,21</sup>, Sean Mace<sup>9</sup>, Barbara Mako<sup>13,22</sup>, Doris Neurath<sup>23</sup>, Man-Chiu Poon<sup>24</sup>, Georges-Etienne Rivard<sup>25</sup>, Robert Schellenberg<sup>26</sup>, Dereth Rowan<sup>13,21</sup>, Anne Rowe<sup>13,27</sup>, Donald Stark<sup>26</sup>, Smeeksha Sur<sup>28</sup>, Ellie Tsai<sup>29</sup>, Richard Warrington<sup>30</sup>, Susan Wasserman<sup>18</sup>, Rohan Ameratunga<sup>31</sup>, Jonathan Bernstein<sup>32</sup>, Janne Björkander<sup>33</sup>, Kristylea Brosz<sup>13,34</sup>, John Brosz<sup>13,34</sup>, Anette Bygum<sup>35</sup>, Teresa Caballero<sup>36</sup>, Mike Frank<sup>37</sup>, George Fust<sup>3</sup>, George Harmat<sup>38</sup>, Amin Kanani<sup>26</sup>, Wolfhart Kreuz<sup>7</sup>, Marcel Levi<sup>39</sup>, Henry Li<sup>40</sup>, Inmaculada Martinez-Saguer<sup>7</sup>, Dumitru Moldovan<sup>41</sup>, Istvan Nagy<sup>42</sup>, Erik W Nielsen<sup>43</sup>, Patrik Nordenfelt<sup>44</sup>, Avner Reshef<sup>45</sup>, Eva Rusicke<sup>7</sup>, Sarah Smith-Foltz<sup>46</sup>, Peter Späth<sup>47</sup>, Lilian Varga<sup>3</sup>, Zhi Yu Xiang<sup>48</sup>

# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

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Longhurst et al. *Allergy, Asthma & Clinical Immunology* 2010, **6**:22  
<http://www.aacijournal.com/content/6/1/22>



ALLERGY, ASTHMA & CLINICAL  
IMMUNOLOGY

REVIEW

Open Access

## HAE international home therapy consensus document

Hilary J Longhurst<sup>1\*</sup>, Henriette Farkas<sup>2</sup>, Timothy Craig<sup>3</sup>, Emel Aygören-Pürsün<sup>4</sup>, Claire Bethune<sup>5</sup>, Janne Bjorkander<sup>6</sup>, Konrad Bork<sup>7</sup>, Laurence Bouillet<sup>8</sup>, Henrik Boysen<sup>9</sup>, Anette Bygum<sup>10</sup>, Teresa Caballero<sup>11</sup>, Marco Cicardi<sup>12</sup>, John Dempster<sup>13</sup>, Mark Gompels<sup>14</sup>, Jimmy Gooi<sup>15</sup>, Sofia Grigoriadou<sup>16</sup>, Ursula Huffer<sup>17</sup>, Wolfhart Kreuz<sup>18</sup>, Marcel M Levi<sup>19</sup>, Janet Long<sup>20</sup>, Inmaculada Martinez-Saguer<sup>21</sup>, Michel Raguét<sup>22</sup>, Avner Reshef<sup>23</sup>, Tom Bowen<sup>24</sup>, Bruce Zuraw<sup>25</sup>



# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

## REVIEW ARTICLE

# **Evidence-based recommendations for the therapeutic management of angioedema owing to hereditary C1 inhibitor deficiency: consensus report of an International Working Group**

M. Cicardi<sup>1</sup>, K. Bork<sup>2</sup>, T. Caballero<sup>3</sup>, T. Craig<sup>4</sup>, H. H. Li<sup>5</sup>, H. Longhurst<sup>6</sup>, A. Reshef<sup>7</sup> & B. Zuraw<sup>8</sup> on behalf of HAWK\* (**H**ereditary **A**ngioedema **I**nternational **W**orking Group)

<sup>1</sup>Dipartimento di Scienze Cliniche "Luigi Sacco", Università di Milano, Ospedale L. Sacco, Milano, Italy; <sup>2</sup>Department of Dermatology, Johannes Gutenberg University, Mainz, Germany; <sup>3</sup>Servicio de Alergia, Hospital Universitario La Paz, Health Research Institute, IdiPaz, Madrid, Spain; <sup>4</sup>Departments of Medicine and Pediatrics, Penn State University, Hershey, PA; <sup>5</sup>Institute for Asthma and Allergy, Wheaton, MD, USA; <sup>6</sup>Barts and the London NHS Trust, London, UK; <sup>7</sup>Sheba Medical Center, Tel Aviv University, Tel Aviv, Israel; <sup>8</sup>University of California, San Diego, CA, USA

# THE EVOLUION OF THE HAE CONSENSUS GUIDELINE

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## Hereditary angioedema with normal C1 inhibitor function: Consensus of an international expert panel

Bruce L. Zuraw, M.D.,<sup>1,2</sup> Konrad Bork, M.D.,<sup>3</sup> Karen E. Binkley, M.D.,<sup>4</sup> Aleena Banerji, M.D.,<sup>5</sup>  
Sandra C. Christiansen, M.D.,<sup>1,6</sup> Anthony Castaldo, M.P.A.,<sup>7</sup> Allen Kaplan, M.D.,<sup>8</sup> Marc Riedl, M.D.,<sup>9</sup>  
Charles Kirkpatrick, M.D.,<sup>10</sup> Markus Magerl, M.D.,<sup>11</sup> Christian Drouet, Ph.D.,<sup>12</sup>  
and Marco Cicardi, M.D.<sup>13</sup>

### ABSTRACT

*A new form of hereditary angioedema (HAE) with normal C1 inhibitor (CIINH) was first described in 2000. The lack of clear diagnostic criteria, the heterogeneity among affected patients, and the varying names given to this disease have led to substantial confusion among both physicians and patients. This study was designed to bring more clarity to the diagnosis and potential treatment of HAE with normal CIINH. An international symposium of experts was convened to review the field and develop consensus opinions that could help clinicians who evaluate and manage these patients. Criteria were developed for the diagnosis of HAE with normal CIINH in patients with recurrent angioedema in the absence of concurrent urticaria. In addition, potential therapeutic strategies are discussed. The consensus criteria developed during this symposium will allow physicians to better diagnose and treat patients with HAE with normal CIINH.*

(Allergy Asthma Proc 33:S145-S156, 2012; doi: 10.2500/aap.2012.33.3627)

# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

## WAO GUIDELINE

### WAO Guideline for the Management of Hereditary Angioedema

*Timothy Craig, DO,<sup>1</sup> Emel Aygören Pürsün, MD,<sup>2</sup> Konrad Bork, MD,<sup>3</sup> Tom Bowen, MD,<sup>4</sup> Henrik Boysen,<sup>5</sup> Henriette Farkas, MD PhD,<sup>6</sup> Anete Grumach, MD PhD,<sup>7</sup> Constance H. Katelaris, MB BS PhD,<sup>8</sup> Richard Lockey, MD,<sup>9</sup> Hilary Longhurst, MD,<sup>10</sup> William Lunry, MD,<sup>11</sup> Markus Magerl, MD,<sup>12</sup> Immaculada Martinez-Saguer, MD PhD,<sup>2</sup> Bruce Ritchie, MD,<sup>13</sup> Alexander Nast, MD,<sup>12</sup> Ruby Pawankar, MD PhD,<sup>14</sup> Bruce Zuraw, MD,<sup>15</sup> and Marcus Maurer, MD<sup>12</sup>*

**Abstract:** Hereditary Angioedema (HAE) is a rare disease and for this reason proper diagnosis and appropriate therapy are often unknown or not available for physicians and other health care providers. For this reason we convened a group of specialists that focus upon HAE from around the world to develop not only a consensus on diagnosis and management of HAE, but to also provide evidence based grades, strength of evidence and classification for the consensus. Since both consensus and evidence grading were adhered to the document meets criteria as a guideline. The outcome of the guideline is to improve diagnosis and management of patients with HAE throughout the world and to help initiate uniform care and availability of therapies to all with the diagnosis no matter where the residence of the individual with HAE exists.

**Key Words:** Hereditary Angioedema, Guidelines, HAE, therapy, management, diagnosis, medications, international

(*WAO Journal* 2012; 5:182–199)

#### Review Board Consultation Group

**R**ichard Gower, rgower@marycliffallergy.com (United States)

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Marc Riedel (United States)

Paula Busse (United States)

Paul Potter (South Africa)

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Dumitru Moldovan (Romania)

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# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

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*Practice paper*

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## **International consensus and practical guidelines on the gynecologic and obstetric management of female patients with hereditary angioedema caused by C1 inhibitor deficiency**

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Teresa Caballero, MD, PhD,<sup>a\*</sup> Henriette Farkas, MD, PhD, DSc,<sup>b\*</sup> Laurence Bouillet, MD, PhD,<sup>c\*</sup> Tom Bowen, MD,<sup>d</sup> Anne Gompel, MD, PhD,<sup>e</sup> Christina Fagerberg, MD,<sup>f</sup> Janne Bjökander, MD,<sup>g†§</sup> Konrad Bork, MD,<sup>h†§</sup> Anette Bygum, MD,<sup>i†§</sup> Marco Cicardi, MD,<sup>j†§</sup> Caterina de Carolis, MD,<sup>k§</sup> Michael Frank, MD,<sup>l§</sup> Jimmy H. C. Gooi, MD,<sup>m†</sup> Hilary Longhurst, MD,<sup>n†§</sup> Inmaculada Martínez-Saguer, MD,<sup>o†</sup> Erik Waage Nielsen, MD,<sup>p†§</sup> Krystina Obtulowitz, MD,<sup>q†</sup> Roberto Perricone, MD,<sup>r§</sup> and Nieves Prior, MD<sup>a†§</sup> *Madrid, Spain, Budapest, Hungary, Grenoble and Paris, France, Calgary, Alberta, Canada, Odense, Denmark, Jönköping, Sweden, Mainz and Frankfurt/Mainz, Germany, Milan and Rome, Italy, Durham, NC, Leeds and London, United Kingdom, Bodø, Norway, and Krakow, Poland*



# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

**Allergy**

EUROPEAN JOURNAL OF ALLERGY  
AND CLINICAL IMMUNOLOGY



POSITION PAPER

## **Classification, diagnosis, and approach to treatment for angioedema: consensus report from the Hereditary Angioedema International Working Group**

M. Cicardi<sup>1</sup>, W. Aberer<sup>2</sup>, A. Banerji<sup>3</sup>, M. Bas<sup>4</sup>, J. A. Bernstein<sup>5</sup>, K. Bork<sup>6</sup>, T. Caballero<sup>7</sup>, H. Farkas<sup>8</sup>, A. Grumach<sup>9</sup>, A. P. Kaplan<sup>10</sup>, M. A. Riedl<sup>11</sup>, M. Triggiani<sup>12</sup>, A. Zanichelli<sup>1</sup> & B. Zuraw<sup>11</sup> on behalf of HAWK, under the patronage of EAACI (European Academy of Allergy and Clinical Immunology)\*

<sup>1</sup>Department of Biomedical and Clinical Sciences Luigi Sacco, University of Milan, Luigi Sacco Hospital Milan, Milan, Italy; <sup>2</sup>Department of Dermatology, Medical University of Graz, Graz, Austria; <sup>3</sup>Division of Rheumatology, Allergy and Immunology, Massachusetts General Hospital, Boston, MA, USA; <sup>4</sup>Department of Otorhinolaryngology, Klinikum rechts der Isar, Technische Universität München, Munich, Germany; <sup>5</sup>Division of Immunology/Allergy Section, Department of Internal Medicine, University of Cincinnati College of Medicine, Cincinnati, OH, USA; <sup>6</sup>Department of Dermatology, Johannes Gutenberg University, Mainz, Germany; <sup>7</sup>Department of Allergy, Hospital La Paz Institute for Health Research (IdiPaz), Biomedical Research Network on Rare Diseases–U754 (CIBERER), Madrid, Spain; <sup>8</sup>3rd Department of Internal Medicine, National Angioedema Center, Semmelweis University, Budapest, Hungary; <sup>9</sup>Department of Clinical Medicine, Faculty of Medicine ABC, Sao Paulo, Brazil; <sup>10</sup>Medical University of South Carolina, Charleston, SC; <sup>11</sup>Division of Rheumatology, Allergy and Immunology, Department of Medicine, University of California – San Diego, La Jolla, CA, USA; <sup>12</sup>Department of Medicine, University of Salerno, Salerno, Italy

# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

Allergy

EUROPEAN JOURNAL OF ALLERGY  
AND CLINICAL IMMUNOLOGY



Allergy

ORIGINAL ARTICLE

IMMUNODEFICIENCIES

## International consensus on the diagnosis and management of pediatric patients with hereditary angioedema with C1 inhibitor deficiency

H. Farkas<sup>1</sup>, I. Martinez-Saguer<sup>2</sup>, K. Bork<sup>3</sup>, T. Bowen<sup>4</sup>, T. Craig<sup>5</sup>, M. Frank<sup>6</sup>, A. E. Germeris<sup>7</sup>, A. S. Grumach<sup>8</sup>, A. Luczay<sup>9</sup>, L. Varga<sup>1</sup> & A. Zanichelli<sup>10</sup> on behalf of HAWK<sup>1</sup>

<sup>1</sup>3rd Department of Internal Medicine, Hungarian Angioedema Center, Semmelweis University, Budapest, Hungary; <sup>2</sup>Haemophilia Center Rhinö Main, Meerfelder-Waldorf, Germany; <sup>3</sup>Department of Dermatology, University Medical Center Mainz, Mainz, Germany; <sup>4</sup>Departments of Medicine and Pediatrics, University of Calgary, Calgary, AB, Canada; <sup>5</sup>Department of Medicine, Pediatrics and Graduate Studies, Penn State University, Hershey, PA, USA; <sup>6</sup>Department of Pediatrics, Duke University Medical Center, Durham, NC, USA; <sup>7</sup>Department of Immunology and Histocompatibility, School of Health Sciences, Faculty of Medicine, University of Thessaly, Larissa, Greece; <sup>8</sup>Outpatient Group of Recurrent Infections, Faculty of Medicine ABC, Santo André, SP, Brazil; <sup>9</sup>1st Department of Pediatrics, Semmelweis University, Budapest, Hungary; <sup>10</sup>Department of Biomedical and Clinical Sciences "Luigi Sacco", University of Milan, ASST Fatebenefratelli Sacco, Milan, Italy

# THE EVOLUTION OF THE HAE CONSENSUS GUIDELINE

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**Allergy** EUROPEAN JOURNAL OF ALLERGY  
AND CLINICAL IMMUNOLOGY



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Position Paper

## The international WAO/EAACI guideline for the management of hereditary angioedema – the 2017 revision and update

Marcus Maurer , Markus Magerl, Ignacio Ansotegui, Emel Aygören Pürsün, Stephen Betschel, Konrad Bork, Tom Bowen, Henrik Balle Boysen, Henriette Farkas, Anete Grumach, Michihiro Hide, Constance Katelaris, Richard Lockey, Hilary Longhurst, William Lumry, Inmaculada Martinez-Saguer, Dumitru Moldovan, Alexander Nast, Ruby Pawankar, Paul Potter, Marc Riedl, Bruce Ritchie, Lanny Rosenwasser, Mario Sánchez-Borges, Yuxiang Zhi, Bruce Zuraw, Timothy Craig

*Practice paper*

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## **International consensus and practical guidelines on the gynecologic and obstetric management of female patients with hereditary angioedema caused by C1 inhibitor deficiency**

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Teresa Caballero, MD, PhD,<sup>a\*</sup> Henriette Farkas, MD, PhD, DSc,<sup>b\*</sup> Laurence Bouillet, MD, PhD,<sup>c\*</sup> Tom Bowen, MD,<sup>d</sup> Anne Gompel, MD, PhD,<sup>e</sup> Christina Fagerberg, MD,<sup>f</sup> Janne Bjökander, MD,<sup>g†§</sup> Konrad Bork, MD,<sup>h†§</sup> Anette Bygum, MD,<sup>i†§</sup> Marco Cicardi, MD,<sup>j†§</sup> Caterina de Carolis, MD,<sup>k§</sup> Michael Frank, MD,<sup>l§</sup> Jimmy H. C. Gooi, MD,<sup>m†</sup> Hilary Longhurst, MD,<sup>n†§</sup> Inmaculada Martínez-Saguer, MD,<sup>o†</sup> Erik Waage Nielsen, MD,<sup>p†§</sup> Krystina Obtulowitz, MD,<sup>q†</sup> Roberto Perricone, MD,<sup>r§</sup> and Nieves Prior, MD<sup>a†§</sup> *Madrid, Spain, Budapest, Hungary, Grenoble and Paris, France, Calgary, Alberta, Canada, Odense, Denmark, Jönköping, Sweden, Mainz and Frankfurt/Mainz, Germany, Milan and Rome, Italy, Durham, NC, Leeds and London, United Kingdom, Bodø, Norway, and Krakow, Poland*

# CONSENSUS

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**NEW**

International consensus statement on the application of genetics in the management of primary angioedema



# ROUND TABLE DISCUSSIONS

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11<sup>th</sup> C1-INHIBITOR DEFICIENCY AND ANGIOEDEMA WORKSHOP  
23-26 MAY, 2019, BUDAPEST

