

DR. WALTER STRUHAL (Orcid ID : 0000-0001-7360-7784)

PROF. S. AYHAN ÇALIŞKAN (Orcid ID : 0000-0001-9714-6249)

DR. PANAGIOTIS ZIS (Orcid ID : 0000-0001-8567-3092)

PROFESSOR GUENTHER DEUSCHL (Orcid ID : 0000-0002-4176-9196)

DR. MARIANNE DE VISSER (Orcid ID : 0000-0002-5591-7452)

PROF. CLAUDIO L BASSETTI (Orcid ID : 0000-0002-4535-0245)

Article type : Original Article

**Evaluation of the 2020 EAN Virtual Congress:  
transition from a face-to-face to a virtual meeting**

Maria Stamelou\*<sup>1,2,3</sup>, Walter Struhal\*<sup>4</sup>, Olle ten Cate<sup>5</sup>, Magdalena Matczak<sup>6</sup>, S. Ayhan Çalışkan<sup>7</sup>,  
Riccardo Soffietti<sup>8</sup>, Anthony Marson<sup>9</sup>, Panagiotis Zis<sup>10</sup>, Francesco di Lorenzo<sup>11</sup>, Anja Sander<sup>6</sup>,  
Günther Deuschl<sup>12</sup>, Marianne de Visser<sup>13</sup>, Claudio L.A. Bassetti<sup>14</sup>

<sup>1</sup> Parkinson's disease and Movement Disorders Dept, HYGEIA Hospital, Athens, Greece

<sup>2</sup> European University of Cyprus, Nicosia, Cyprus

<sup>3</sup> Philipps University, Marburg, Germany

<sup>4</sup> Department of Neurology, Universitätsklinikum Tulln, Karl Landsteiner University of Health Sciences, Tulln, Austria

<sup>5</sup> Center for Research and Development of Education, University Medical Center Utrecht, the Netherlands

<sup>6</sup> European Academy, Head office, Vienna, Austria

<sup>7</sup> Ege University Faculty of Medicine, Department of Medical Education, Izmir, Turkey

<sup>8</sup> Department of Neuro-Oncology, University and City of Health and Science, Turin, Italy

<sup>9</sup> University of Liverpool and The Walton Centre NHS Foundation Trust Liverpool UK

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/ENE.14702](https://doi.org/10.1111/ENE.14702)

This article is protected by copyright. All rights reserved

<sup>10</sup> Medical School, University of Cyprus, Nicosia, Cyprus

<sup>11</sup> Non Invasive Brain Stimulation Unit, Department of Behavioral and Clinical Neurology, Santa Lucia Foundation IRCCS, Rome

<sup>12</sup> Department of Neurology, Universitätsklinikum Schleswig-Holstein, Christian-Albrechts University, Kiel, Germany

<sup>13</sup> Department of Neurology, Amsterdam University Medical Centres, Amsterdam, The Netherlands

<sup>14</sup> Department of Neurology, Inselspital, Bern, University Hospital, University of Bern, Switzerland

**Corresponding author:** Prof Claudio L.A. Bassetti, Department of Neurology, Inselspital, Bern University Hospital, University of Bern, Switzerland; Freiburgstrasse, 3010 Bern Switzerland; Phone: +41 31 632 73 05; Fax: +41 31 632 96 79 claudio.bassetti@gmx.net

**Abstract: 253**

**Text: 3529**

**Figures: 2**

**Tables: 3**

**Supplementary material:** Supplementary tables 1, 2 and 3

**Running title:** EAN virtual congress evaluation

**Key words:** international congress, virtual congress, evaluation, transition, quality

**Funding related to this manuscript:** none

**Conflict of interest related to this manuscript:** The authors have stated explicitly that there are no conflicts of interest in connection with this article

## Abstract

**Background:** Due to the COVID-19 pandemic, scientific congresses are increasingly being organised as virtual congresses. In May 2020, the European Academy of Neurology (EAN) held a VC, free-of-charge. In the absence of systematic studies on this topic, the aim of this study is to evaluate the attendance and perceived quality of the 2020 EAN virtual congress (VC) compared to the 2019 EAN face-to-face congress (FFC).

**Methods:** Analysis of demographic data of participants obtained from the online registration collected. Comparison of the two congresses based on a survey with questions on the perception of speakers' performance, quality of networking, and other aspects.

**Results:** Of 43,596 registered participants, 20,694 active participants attended the VC. Compared to 2019, the number of participants tripled (6916 in 2019) and the cumulated number of participants attending the sessions was five times higher (169,334 in 2020 vs 33,024 in 2019). Out of active participants 55% were from outside Europe, 42% were board-certified neurologists (FFC: 80%), and 21% were students (FFC: 0.6%). The content of the congress was evaluated as 'above expectation' by 56% of the attendees (FFC: 41%). Out of the respondents who had been exposed to earlier EAN congresses 73% preferred the FFC congress compared to the VC (17%).

**Conclusion:** The VC fulfilled the main mission of organizing high quality EAN congresses despite the restrictions of the impersonal format. The geographical distribution of the participants prove the expected higher inclusivity of a VC. The large participation of students and neurologists in training opens new educational potentials for the EAN.

## Introduction

The COVID-19 pandemic has forced the transition of many international conferences to virtual ones, as scientists look for ways to sustain scientific exchange and interaction given the fact that face-to-face meetings are not possible. These virtual congresses (VCs), in every discipline of medicine and beyond it were mostly well accepted, although systematic evaluation data are limited. [1-7] Given the ongoing limitations due to the pandemic, the threat of similar outbreaks in the future, the possibility of attending such meetings with reduction of the carbon dioxide

footprint, and technological advances, it is becoming increasingly obvious that VCs are not a temporary solution and will most likely expand beyond the current pandemic. Therefore, systematic evaluation in order to improve VCs is necessary. [3, 8, 9]

Since the European Academy of Neurology (EAN) was founded in 2014, its congresses have been attended by approximately 6500 neurologists annually; the participation was mainly European but approximately a quarter of the participants came from other continents. Usually, the four-day face-to-face annual congress consists of 130 sessions, plus several industry and networking events. In addition, electronic poster (ePoster) presentations are organised in about 80 sessions. The target audience includes certified neurologists, neurology residents and medical students. In 2020, by the end of March, the EAN board decided for health and safety reasons and due to official regulations to transform the congress into a full four-day VC, free-of-charge to registered participants. There was a refund to people that had already registered for the FFC.

The transition from a FFC to a VC within eight weeks was a challenge for everyone involved, but also an exciting opportunity to expand, learn and discover new ways of communicating, collaborating, and using technology.[2] To enable the implementation of the necessary changes, a Taskforce consisting of EAN Board and Committee members working on a voluntary basis was created. A new registration system was implemented, and a security plan was set-up focusing on cyber security, data security, and availability of servers, internet connections and electricity. To meet the requirements of EAN and its industry partners, the VC online platform was built based on an existing platform with basic functionality used already at previous congresses.

Here, it is presented, how the demographics have changed from 2019 EAN face-to-face congress (FFC) and, how participants, chairs and speakers have evaluated the 2020 EAN virtual congress (VC) in comparison to the 2019 FFC. Eventually, it is discussed how this information can be used for future planning of virtual or hybrid congresses.

## **Methods**



The VC was organised in a similar way as reported in the technical community and other similar meetings. [1-6, 10-12] The daily schedule was largely retained as initially planned. The scientific and educational content was presented with pre-recorded lectures. Still, the speakers and chairpersons were present and responded 'live' to the questions from the audience that could be asked via a Zoom™ chat function (Q&A function). Presenters of ePresentations and ePosters also pre-recorded their presentations, which were available on demand and for which 'guided tours' were organised with a chair calling up presentations, live presenters and the possibility for questions submitted with the chat function as described for the other sessions. On-demand streaming of all lectures was available from the first day and up to three days after the congress for registered users, and beyond that for EAN members. The industry-organised sessions were held in the same way as the scientific sessions. An 'exhibition area' with virtual booths, 'Meet the Expert' areas and other online activities were set up that were maintained by industry and non-profit partners directly via a content management system. The online platform featured an EAN Info area and other activities, such as an online Junior Suite for children with crafting, singing, and dancing videos, as well as a Yoga area with instruction videos available.

An *ad hoc* task force (TF) for the evaluation of the 2020 VC was established and included members of the Ethics and Quality Task Force (EQTF), representatives of the EAN Board, EAN staff and external educational experts. The EQTF is a standing committee of EAN that oversees feedback processes, and analyses evaluation results for all EAN educational and scientific activities since the establishment of this task force in 2015.

#### *Congress data*

Data on participants and countries, speakers, and types of sessions were collected from the 2019 FFC and compared to those from 2020 VC.

#### *Evaluation Questionnaires*

The evaluation included a general congress evaluation questionnaire (conducted via SurveyMonkey); a poster sessions evaluation (conducted via SurveyMonkey); and a session/speaker evaluation for each of the scientific, educational and industry sessions

(conducted directly via the congress platform). The questionnaires were completed by the participants, speakers, and chairpersons of the sessions. To fulfil the EACCME criteria, a participants' tracking had been implemented. In order to receive their certificates per sessions, visitors had to stay for at least 30 minutes in the session to be able to fill in the evaluation form. In 2020, all evaluation forms were updated to include relevant questions that pertain to a VC. A new evaluation form was added for the new session formats: 'Coffee with You' and 'Why Neurology? From a Student to a Professor'. These were small interactive sessions, with a maximum attendance of 20-25 students and junior neurologists, during which experienced and renowned neurologists (including the EAN president and board members) answered questions of the attendants on their career paths, academic and personal challenges and experiences. Participants were requested to evaluate the activities with a three-point Likert-type scale ('above my expectations – above', 'met my expectations – on target', 'below my expectations – below'). The questions were mostly identical to those used in previous years to allow a comparison between the 2019 FFC and the 2020 VC. Filling in the evaluation forms was possible until one week after the end of the VC. The evaluation by the participants was a prerequisite for receiving CME credits.

#### *Available data and web-analytics*

A global database had been generated for the 2019 FFC. This included participants' demographics and the results of the evaluations of the 2019 congress. The time spent at the 2019 FFC congress was measured via session attendance. The number of attendees in the session was calculated by counting the participants for each session in 2019. By using web-analytic tools in 2020, congress attendance was calculated as time that each visitor was logged in during the respective sessions. The results from 2020 were fed into the database for 2019 for further querying, analysis, and quality control.

The general evaluation, evaluation of speakers by participants, and evaluation of the sessions by the chairs and speakers were used as a data source for calculation of the perceived quality. The sessions were grouped as scientific, educational, industry and other sessions (**Table 1**).

For the quality evaluation, data were first bulked for individual data abstraction and stored in a MS Access Jet Database and evaluated through SQL Queries (MS Visual Basic) and R programming language. Although technically possible, source registration data were not connected with other data sources throughout the evaluation, to protect respondent's anonymity.

## **Results**

### *Participants and attendance*

A total of 43,596 participants registered for the VC 2020 vs. 6916 for the FFC in 2019. Data on demographics, stage of career, EAN membership status, and countries of origin compared to those of the 2019 FFC are shown in **Table 1**. While almost all 6916 registered participants attended 2019 FFC, out of the 43,596 registered persons for the VC in 2020, 20,694 logged in to the congress platform at least once during or after the VC and are labelled here as 'active participants' (**Figure 1A**). 13,256 of the registered participants indicated their gender, resulting in a male:female ratio of 53%:47%.

**Figure 1 near here**

**Table 1 near here**

The average attendance per session was 785 participants (vs. 215 in 2019), with the highest peak during a live session of 4097 (a teaching course) vs. 2288 in 2019 (the Presidential symposium).

The geographical distribution of the active participants of the VC was as follows: Europe (45% vs. FFC 2019 70%), South America (27%), Asia (14%), Africa (3%), North America (4%) and Australia (1%) (**Figure 1A**). Of active participants, 27% were from Brazil, followed by Italy (5%), and UK (4%), in accordance with the geographical distribution of registrations. Compared to the FFC 2019, among the top 10 of the European countries represented in 2020, Romania and Poland were new. European visitors spent almost double the time streaming content compared to South American visitors (total duration: 43 hours vs. 23.8 hours, respectively). Forty-two percent of the online visitors were certified neurologists, 15% were neurologists in training, 3% were research

fellows and 21% were medical students. Among the European participants 1785 (51%) were members of EAN (**Table 1**).

On the first day, 17,824 visitors attended the VC (vs. 2200 in 2019 FFC). On the 2<sup>nd</sup> and 3<sup>rd</sup> day visitors peaked to 33,475 (76.8% of registered users) and 33,473 (76.8% of registered users), respectively. Participation was highest on the 3<sup>rd</sup> day, from 3.00 pm CEST to 4.00pm CEST with 12,492 in all rooms (29% of registered users) (vs. 3807 in 2019 FFC, 55% of registered participants). On average, peaks of participation during the VC were mainly between 10 am and 3 pm CEST. Over the three days following the VC, more than 12,000 unique visitors streamed sessions, which were available on demand. The number of all participants in all sessions had a 5-fold increase to 169,334 attendees at the VC 2020 as compared to 33,024 in 2019. The attendance of the sessions by session type is compared to the 2019 FFC congress in **table 2**.

**Table 2 near here**

During the preparation phase of the 2020 FFC, 127 sessions were planned by the Programme Committee (excluding sessions based on free submissions such as ePoster and oral sessions, as well as Networking and Industry Sessions). For the VC, 93% of the original programme was retained. The numbers of abstracts submitted, accepted and uploaded are given in **Table 1**. The total number of posters presented was 1198, and similar as in 2019.

#### *General congress evaluation*

Out of the 20,694 active congress participants (i.e. participants in at least one session), 3495 responded (response rate: 16.9%) (**Table 1**) (vs. 2019 FFC = 16.6%). On average, respondents needed six minutes to complete the survey. Most respondents were from Europe (50%) followed by South America (32%), Asia (13%), Africa 3% and North America (2%) (**Figure 1A**).

**Supplementary Table 1** shows the numbers of respondents per country in detail.

**Table 3** shows the results of the general VC 2020 evaluation and the relevant results from the 2019 FFC. More than 90% of the respondents stated that the content of the congress, scientific

sessions, and educational sessions content either met or exceeded their expectations, which was slightly higher as compared to the 2019 FFC (**Figure 1B**). With regard to the ePoster sessions, 79% perceived the quality as 'above expectations' or 'on target' (2019 FFC = 93%). Approximately 20% did not answer this question (2019 FFC = 5%).

### **Table 3 near here**

More than half (56%) of the respondents did not reply or replied with 'below expectation' to the questions about perceived quality of the networking possibilities during the VC, while at the 2019 FFC, 95% found networking to be at least 'on target'. Networking aspects were assessed as an important part of a congress for participants, as can be seen in the participants' individual responses (**Table 3**).

Of those respondents, who had participated at least in one previous EAN-FFC congress 73% considered the FFC congress slightly or much better than a VC and 17% considered the VC better (**Table 3**).

Open comments included perceived technical problems (N= 2557); strengths of a VC that should be retained for the future (N= 2513); weaknesses of a VC that should be avoided in the future (N= 2398); features to add in the future (total answers N= 2169); and any other ideas, wishes or comments to the congress organisers (total answers N= 2067). These comments can be summarised as follows: The main technical problems included audio; video and internet connections; difficulties in live streaming; and delays in receiving certifications. The main strengths included good accessibility, comfort and convenience, no need for travelling and decreased costs and flexibility (for example being able to see all lectures that otherwise would have been organised in parallel). The main limitations included technical issues, lack of networking and lack of personal interaction with speakers, especially in sessions such as hands-on courses. The main suggestions were to find ways to increase networking and to include more interactive, video and live sessions as well as to implement a hybrid congress.

*Speakers' and session evaluation by participants*

Participants rated educational, scientific, and other sessions (excluding sessions organised by industry) above expectation: 57%, 52%, and 54%, respectively (**Figure 1B**). All session categories and ratings with regard to four domains ('speaker able to attract attention', 'better understanding of the topic', 'quality of slides', 'relevance to my practice'), as well as the comparison with the 2019 FFC results, can be seen in **Figure 1B** and for each session type in **Supplementary Table 2**. Evaluations of plenary sessions, teaching courses and focused workshops in comparison to the 2019 FFC, are highlighted in **Figure 2** and **Supplementary Table 3**.

The perceived quality of all sessions and all four domains were altogether for the vast majority of respondents, 'above my expectations' and 'on target' (**Figure 2**). Compared to the 2019 FFC, higher percentages of respondents rated the sessions as 'above expectation' for all session types. For the 2020 VC, the question 'would you recommend the session to other colleagues', was answered positively by 98% of respondents for all sessions. Specifically, for the 2020 VC, participants were additionally asked whether during the session discussion the communication with the Q&A function online was satisfactory (97% replied 'above my expectations' or 'on target'), whether a video of the presenter should be part of the presentation (87% responded 'yes'), and whether they experienced any technical problems (19% responded 'yes'). For the 'Coffee with You' and the 'Why Neurology? From a Student to a Professor' sessions, all respondents apart from one replied 'above expectation' and/or 'on target', (response rate 69%), and 90% 'above expectations' (response rate 45%), respectively.

#### *Evaluation of the sessions by chairpersons and speakers*

The survey on session quality from the speakers'/chairpersons' perspective had been distributed only to chairpersons of educational sessions in 2019. Therefore the 2020 results cannot be compared with 2019 FFC, since in 2020 speakers and chairpersons, presenting any session type, were asked to fill in the survey.

In 2020, 89 responses from 206 chairpersons were received (response rate 43%). For the questions about 'Scientific and/or educational content' and 'Scientific preparation of the session

with speakers of the session' the majority evaluated it as excellent (53.4% for both questions), while 37% scored 'good' for both questions, and 17.4% as 'poor'. The 'Quality of the interaction with the audience via Q&A tool' question was evaluated as excellent by 29.2%, good by 44.4%, and poor by 10.0%.

Ninety-four responses from 290 speakers in 2020 were received (response rate 32.0%). For the question about 'Scientific and/or educational content' the majority evaluated it as excellent (64.0%) and the rest as 'good', while for the question 'Scientific preparation of the session with speakers of the session' 53.0% rated it as excellent, 30.0% as good and 17.0% as poor. The 'Quality of the interaction with the audience via Q&A tool' question was evaluated as excellent by 41.0%, good by 30.0% and 29.0% as poor.

## **Discussion**

The first virtual EAN congress (VC) took place in May 2020 as the first large-scale international medical congress organized at the beginning of the current steep learning curve for holding such mega-events. The reorganisation from a face-to-face congress (FFC) had to be managed within eight weeks and this evaluation shows its success. The 2020 EAN VC tripled the number of attendees compared to the 2019 FFC congress, the number of total attendees of all sessions was even five times higher. A much larger percentage of participants came from outside Europe. The quality of the content met or exceeded the expectations for the majority of participants, while interaction and social networking are areas, which were less favourably rated. Technical problems are reflected only in the speakers' responses.

Inclusivity is one of the advantages of VCs. It greatly facilitates to reach out to everyone such as parents with small children; colleagues with low income; people with physical disability; or participants, who are not able to travel for different reasons, and this is reflected in the large increase in audience and feedback, similarly to other virtual meetings. [3, 4] This year's active

participants originated from every continent, with only 45% residing in Europe. At previous FFC's the majority of participants (70%) was from Europe. Likewise, the increase in registrations from low-income countries exceeded that of the 2019 FFC (57% vs. 30%). The attendance from North America was relatively low, particularly when compared with the huge attendance from South America. The reasons for this are unclear. The European participants streamed sessions twice as often (43 hours) compared to the other participants. For data protection regulations, the Europeans' ratings cannot be directly compared with those from other continents, but the overall evaluations did not provide much room for deviating responses. Therefore, EAN trusts that their needs were met as well.

Only less than half of the registered participants actively participated in the VC. Presumably, the most important reason for this is that participants are not relieved from their daily commitments to patient care, and competing tasks may have distracted them from attending. The audience consisted of participants in all stages of their careers, from medical students, fellows, neurologists in training to later stage career clinicians, in contrast to the 2019 FFC, or FFC congresses 2017-2018, where 71% - 95% of the participants were board certified neurologists. Thus, our study provides evidence that more people in their early career have been attracted by this new format. Notwithstanding, the absolute number of certified neurologists (5532 in 2019) has also increased (8775 in 2020).

There are *de facto* differences between a face-to-face and a virtual congress that hamper a direct comparison. Overall, the VC fulfilled or exceeded expectations of the participants in terms of both scientific and educational content, when compared to the 2019 FFC. It was particularly interesting to see the positive rating of the educational activities regarding aspects of presentation of the key messages, although the lack of possibilities to interact and to network was frequently mentioned as a disadvantage.

Not surprisingly, one major limitation of the VC that emerged through the evaluation process was a lack of networking opportunities. While online communication may not limit the transfer of information, face-to-face communication has been shown to increase the feeling of more



efficacious transfer of information.[13] Indeed, networking and social interaction with colleagues outside the sessions, and having the opportunity to approach and meet speakers and delegates, with whom one shares common scientific interests is one of the most important aspects of an FFC. Moreover, interaction during a session is important, which has been perceived as satisfactory via the Q&A function, while live hands-on courses and Grand Rounds are strengths of an FFC and perceived as extremely valuable for the audience, as can be seen in the evaluations of previous FFCs. The organisers of the VC has made major attempts to provide opportunities of interaction by introducing some new session types, but more effort is needed. More interactive courses, more online forums and (break out) chat rooms dedicated to special scientific or clinical interests could be some ways to increase interaction during a VC. Also, the possibility of organising a separate 'networking' congress in parallel or after the VC, where people will be grouped based on their interest and interaction could be an option. [3, 4, 11, 12]

In summary, the EAN 2020 experience demonstrates that VC's can satisfy the scientific and educational needs of participants within the limits of a virtual platform. In addition, it is proven that the audience of congress can be significantly broadened by having online events. New and unexpected is the outcome that regional (in this case European) congresses may become of interest for participants from other continents. Elements of FFC congress, which remain hard to replace are the networking facilities which are an important component also for early-career colleagues. Finally, the EAN experience suggest that FFC may be associated with a more focused attention of participants than VC.

The medical community is still on the quest for best practice parameters for virtual meetings[11] and within the information technology (IT) community best practice parameters have been recently published.[14] Virtual meetings are currently the only way to hold large congresses, but they will be needed even after the pandemic, to be more inclusive and to take action against climate change. [15] A hybrid congress that would combine the strengths of both face-to-face and virtual meetings would be a reasonable and promising way to organise future congress.[16] The evaluation results of this congress show suitable ways to improve in the future. The future

existence of face-to-face congresses is undisputed provided the inclusion of a strong virtual component, the hybrid congress.

#### References:

- [1]. Kopec KT, Stolbach A. Transitioning to Virtual: ACMT's 2020 Annual Scientific Meeting. *J Med Toxicol*. 2020.
- [2]. Killock D. From the ASCO20 Virtual meeting. *Nat Rev Clin Oncol*. 2020 **17**: 449.
- [3]. Houston S. Lessons of COVID-19: Virtual conferences. *J Exp Med*. 2020 **217**.
- [4]. Chris M. Lessons Learned Organizing the PAM 2020 Virtual Conference. ACM SIGCOMM Computer Communication Review, 2020.
- [5]. Forrest ARR, Repetto GM, Reichardt JKV. Human genetics and genomics meetings going virtual: practical lessons learned from two international meetings in early 2020. *Hum Genomics*. 2020 **14**: 27.
- [6]. Overgaard S, Neyret P, Günther KP, Felländer-Tsai L. Virtual congresses - the new normal? EFORT 2020 re-worked: The Virtual EFORT Congress (VEC) from 28 to 30 October 2020 is coming this way! *EFORT Open Rev*. 2020 **5**: 519-521.
- [7]. Rundle CW, Husayn SS, Dellavalle RP. Orchestrating a virtual conference amidst the COVID-19 pandemic. *Dermatol Online J*. 2020 **26**.
- [8]. Viglione G. A year without conferences? How the coronavirus pandemic could change research. *Nature*. 2020 **579**: 327-328.
- [9]. Viglione G. How scientific conferences will survive the coronavirus shock. *Nature*. 2020 **582**: 166-167.
- [10]. Uhlig S. The July 2020 issue. *ACM SIGCOMM Computer Communication Review*. 2020 **50**.
- [11]. Rubinger L, Gazendam A, Ekhtiari S, *et al*. Maximizing virtual meetings and conferences: a review of best practices. *Int Orthop*. 2020 **44**: 1461-1466.
- [12]. Bottanelli F, Cadot B, Campelo F, *et al*. Science during lockdown - from virtual seminars to sustainable online communities. *J Cell Sci*. 2020 **133**.

- [13]. Okubo M, Terada A. Effectiveness of Visual Non-verbal Information on Feeling and Degree of Transmission in Face-to-Face Communication. Cham: Springer International Publishing, 2018: 279-290.
- [14]. taskforce Ap. ACM Presidential Task Force on What Conferences Can Do to Replace Face-to-Face Meetings. 2020.  
([https://people.clarkson.edu/~jmatthew/acm/VirtualConferences\\_GuideToBestPractices\\_CURRRENT.pdf](https://people.clarkson.edu/~jmatthew/acm/VirtualConferences_GuideToBestPractices_CURRRENT.pdf))
- [15]. Roberts I, Godlee F. Reducing the carbon footprint of medical conferences. *BMJ*. 2007 **334**: 324-325.
- [16]. Porpiglia F, Checcucci E, Autorino R, *et al*. Traditional and Virtual Congress Meetings During the COVID-19 Pandemic and the Post-COVID-19 Era: Is it Time to Change the Paradigm? *Eur Urol*. 2020 **78**: 301-303.

#### Table legends:

##### Table 1: Registration statistics and evaluation statistics

\*Participants were characterized as active when they have attended at least one session.

\*\* Countries have been allocated to those groups according to the World Bank countries' classification

NA = not available

##### Table 2: Comparison of attendance during the face-to-face congress 2019 and the virtual congress 2020.

Participants have been counted during the face-to-face congress and the number of viewers at all sessions were collected within the electronic platform during the online congress.

##### Table 3: Results from the general evaluation form of the congress (n=3494 respondents). Results from

Questions 1-4 are compared to results from the 2019 face-to-face meeting as questions were identical.

Questions 5-9, and 11-14 were new questions to assess the virtual aspects of the meeting. Question 10

was slightly changed (*italics in the table*) therefore results compared to 2019 may not be directly comparable, given also the different nature of networking in the virtual meeting. NA= not available

**Figure legends:**

**Figure 1 (A)** Continents of origin of the registered, active and voting participants. **(B)** Mean rating of the session's evaluation of the voting active participants for the scientific, educational, industry and other sessions

**Figure 2** Responses of participants with respect to the four different questions and separated for the different session types (scientific, educational, other and industry)

<b>Registration Statistics</b>		
<b>Congress</b>	<b>2019</b>	<b>2020</b>
	<b>Face-to-face</b>	<b>Virtual</b>
<b>Numbers of Registrations</b>	6916	43,596
<b>Active participants*</b>	6916	20,694
<b>Responders to evaluation**</b>	1151 (16.6%)	3495 (16.9%)
<b>Participants' career stage</b>		
Certified Neurologists	80.0% (n=5532)	42.4% (n=8775)
Research Fellows in Neurology	3.9% (n=267)	3.2% (n~1400)
Neurologists in training	NA	14.7%
PhD students in Neurology	NA	2.6%
Undergraduate medical students	0.6% (n=40)	20.9% (n~9000)
Others (industry representatives, nurses, patients and press)	15.5% (n>1000)	16.2% (n>7000)
<b>EAN Individual members</b>	8.9% (n=612)	13.0% (n~5600)
<b>Continents represented</b>		
Active participants from Europe	4823 (69.7%)	9312 (45.0%)
Active participants from other continents	1510 (21.8%)	11,382 (55.0%)
<b>Countries represented (number)</b>		
Low-income countries***	30	57
High-income countries***	39	105
<b>Abstracts / Posters</b>		
<b>Abstracts</b>		
Submitted	2250	2426
Accepted	1841	1965

Withdrawn	111	41
<b>Posters uploaded</b>	86.0%	88.3%
<b>Evaluation Statistics</b>		
<b>Responders to the evaluation (rate)</b>		
Response rate for general evaluation by the audience	16.6% (1151)	16.9% (3495)
Response rate by the speakers	Not done in 2019	32.0%
Response rate by the chairs	59.0%	43.0%
<b>Continents of origin of the congress general evaluation respondents</b>		
Europe	79.8%	50.0%
South America	2.4%	32.0%
Asia	10.3%	13.0%
Africa	1.82%	3.0%
North America	6.0%	2.0%
<b>Countries of origin of the congress general evaluation responders</b>		
Low-income countries***	NA	27
High-income countries***	NA	79

**Table 1: Registration statistics and evaluation statistics.**

\*Participants were characterized as active when they have attended at least one session.

\*\* General congress evaluation

\*\*\* Countries have been allocated to those groups according to the World Bank countries' classification.

NA = not available

**Table 2:** Comparison of attendance during the face-to-face congress 2019 and the virtual congress 2020.

	2019	2020
	Face-to-face	Virtual
Session Type	Number of Participants*	Number of Viewers*

#### Scientific Sessions

Plenary Symposia	8788	6280
Symposia	3935	5112
Focused Workshops	1582	5398
Oral Sessions	3100	13,474
Special Sessions	3582	6176
Posters	not counted	24,650
Tournament	96	included in oral session
<b>Total 'Scientific Sessions'</b>	<b>21,083</b>	<b>61,090</b>

#### Educational Sessions

Teaching Courses	1501	13,630
Career Development Sessions	116	270
Case-based Workshops	276	2673
Controversies	311	922
Hands-on Courses	411	1629
Interactive Sessions	1898	2468
<b>Total 'Educational Events'</b>	<b>4513</b>	<b>21,592</b>

#### Industry Events

3-Days Satellite Session	916	2220
Satellite Symposia	6437	13,342
Forum Programmes	not counted	2036
<b>Total 'Industry Events'</b>	<b>7,353</b>	<b>13,342</b>

#### Others

Scientific theatre	not counted	5328
Networking	75	1069
<b>Total 'Others'</b>	<b>75</b>	<b>6397</b>

<b>Total number of session participants</b>	<b>33,024</b>	<b>169,334</b>
---------------------------------------------	---------------	----------------

\*Participants have been counted during the face-to-face congress and the number of viewers at all sessions were collected within the electronic platform during the virtual congress.



**Table 3: Results from the general evaluation form of the congress (n=3495 responders).**

<b>Questionnaire on general evaluation of the congress (n=3494 responders)</b>	<b>2019 Face-to-face</b>	<b>2020 Virtual</b>
<b>1. Did the content of the congress meet your expectations?</b>		
Above expectations (%)	41.00	56.09
On target (%)	56.00	40.47
Below expectations (%)	3.00	2.80
No answer (%)	-	0.64
<b>2. Did the overall content of the scientific sessions meet your expectations?</b>		
Above expectations (%)	40.00	49.06
On target (%)	57.00	47.12
Below expectations (%)	3.50	2.69
No answer (%)	-	1.13
<b>3. Did the overall content of the educational sessions meet your expectations?</b>		
Above expectations (%)	40.00	48.80
On target (%)	57.00	45.10
Below expectations (%)	3.50	2.83

No answer (%)	-	3.27
<b>4. Did the ePoster sessions meet your expectations?</b>		
Above expectations (%)	31.00	25.90
On target (%)	62.00	48.83
Below expectations (%)	7.10	5.61
No answer (%)	-	19.63
<b>5. Did the quality of the visual aids meet your expectations?</b>		
	not applicable	
Above expectations (%)		41.17
On target (%)		49.49
Below expectations (%)		6.74
No answer (%)		2.60
<b>6. Was the congress website clear and easy to navigate?</b>		
	not applicable	
Above expectations (%)		41.17
On target (%)		49.49
Below expectations (%)		6.74
No answer (%)		2.60
<b>7. Was the EAN Virtual Booth the expected hub of practical information and support for the virtual congress?</b>		
	not applicable	
Above expectations (%)		30.79

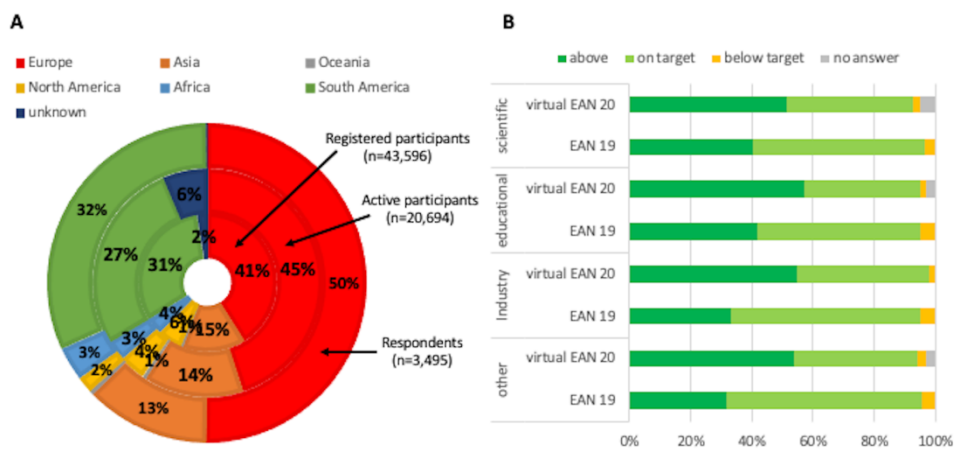
On target (%)		46.86
Below expectations (%)		6.62
No answer (%)		15.73
<b>8. Did the content provided by the industry sponsors meet you expectations?</b>	not applicable	
Above expectations (%)		23.04
On target (%)		53.74
Below expectations (%)		5.09
No answer (%)		18.13
<b>9. How did you experience the virtual congress platform in general?</b>	not applicable	
Above expectations (%)		52.33
On target (%)		40.27
Below expectations (%)		6.50
No answer (%)		0.90

<b>10. I found it easy to get in touch with other delegates during the virtual congress</b>	<b>2019 Face -to-face</b>	<b>2020 Virtual</b>
YES (%)	95.00	43.54
NO (%)	5.00	19.08
No answer (%)	-	37.38

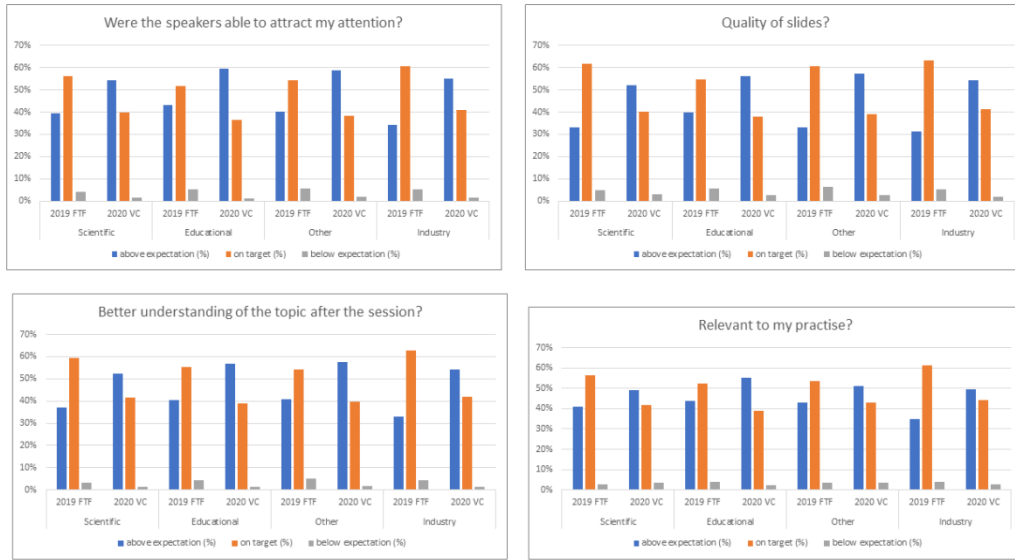
Total number	1095	3438
<b>11. Networking during a congress is important for me</b>	NA	
YES (%)		78.67
NO (%)		9.60
No answer (%)		11.73
Total number		3427
<b>12. Informal talk with colleagues is important to me</b>	NA	
YES (%)		76.26
NO (%)		11.27
No answer (%)		12.46
Total number		3459
<b>13. I have been at the EAN Congress 2019 in Oslo or at the EAN Congress in Lisbon 2018</b>		
YES (%)	NA	20.06
Total number	NA	3459

<b>14. Please compare virtual to face-to-face meeting</b>	<b>Face-to-face slightly to much better (%)</b>	<b>No difference (%)</b>	<b>Virtual slightly to much better (%)</b>	<b>No answer (%)</b>
All answers (N=3434 – 100%)	47.7	6,1	25,8	20,41
Participants attending the face-to-face meeting 2018 or 2019 (N=707 – 100%)	73.0	7.0	17.0	3.0

Results from Questions 1-4 are compared to results from 2019 face-to-face meeting as questions were identical. Questions 5-9, and 11-14 were new questions to assess the virtual aspects of the meeting. Question 10 was slightly changed (*italics in the table*) therefore results compared to 2019 may not be directly comparable, given also the different nature of networking in the virtual meeting. NA= not available or applicable.



ene\_14702\_f1.tiff



ene\_14702\_f2.tif