

15T ANNUAL REPORT

Uniting The Clinical Engineering Profession Across the Globe

INTERIM PRESIDENT LETTER

Written by Yadin David



The past two years clearly demonstrated that local healthcare is a global issue. Loss of lives, emotional pain, psychological devastation, employment loss, and damaged economies are unfortunately only some of the lessons the world has learned. This highlighted the need for closer international cooperation. But even prior to this pandemic era, we learned from international surveys conducted in 2017 and published in 2019 that the benefits from a more connected and collaborative world are also obvious in the clinical engineering (CE) field. The published conclusions of these global-base surveys included statement such as "The data also sufficiently demonstrate a clear and overwhelming positive response for the value seen in having international organization that will focus on CE needs (612 responses) as well as for responders' intention to participate in such an organization (553 responses)." In the vast healthcare delivery system, the community of clinical engineering professionals fill critical roles during each of the technology life-cycle phases. These critical roles impact medical products innovation, safe patient experience, clinical outcomes, and efficiency in resource utilization.

It is therefore important that the CE field will focus together on the development and sustainability of its human capacity, competency in delivering their mission, and increased working partnership with other stake holders.

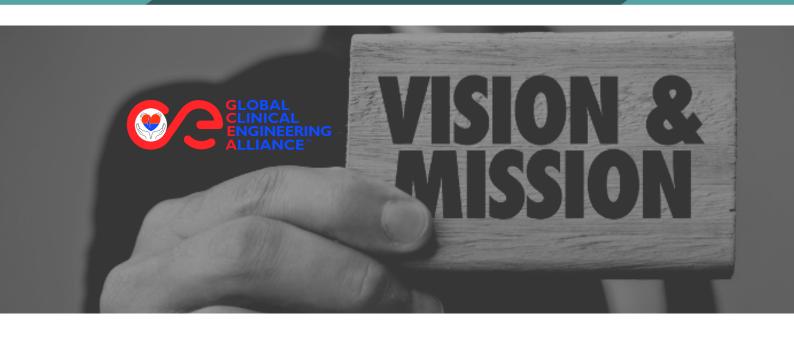
The early change became visible in 2015, when CE leaders initiated a series of collaborative events offering opportunities to share knowledge, best practices and plan future joint professional development activities and advocacy to promote the profession. They created events such as: the 1st International Clinical Engineering & Health Technology Management Congress (ICEHTMC) in China www.icehtmc.com, followed by two-year apart Congresses in Brazil and in Italy. The 4th Congress was just successfully completed in October 2021, the IV ICEHTMC, that included important events such as the 6th Global Clinical Engineering Day celebration, the 4th volume by the Global Clinical Engineering Journal (www.GlobalCE.org), the 1st Global collaborative CE awards, and the 4th Global Clinical Engineering Summit (globalcea.org). These events were successfully jointly administered in collaboration with IFMBE/CED. This collaboration is unique and stand to benefit the whole international clinical engineering village, as well as contributing to better care outcomes.



Since the 3rd ICEHTMC Congress in Rome, October 2019, a group of CE experts from around the world have discussed options to formalize these developments through an international organization that exclusively represents, is governed by, and serves interests of Clinical Engineering professionals worldwide. Following over a year of dedicated work, the creation of the Global Clinical Engineering Alliance (GCEA) was announced during the 2020 Global CE Day celebration's. Global Clinical Engineering Alliance (GCEA) Intro Video.

This not-for-profit Alliance already accomplished significant milestones in the service of the public and the profession. Milestones that are the results of clear vision, dedicated volunteers, identifyed and addressed dire needs within the healthcare delivery ecosystem. Because of the dedication of such colleagues, we are continuing to log additional evidence of the contributions we make to improve care outcomes as has been demonstrated by successfully completing two (x2) innovative health technology innovation assessments under contracts with World Health Organization (WHO) - the WHO compendium of innovative health technologies for low-resource settings 2021 and 2022, and by creating COVID-19 resources and other educational webinars on health priorities. Arguably, a solid beginning for the global clinical engineering village.

"Next year larger focus will be placed on further growth of the GCEA membership village!"





GCEA MISSION

Build an international foundry for leveraging national Clinical Engineering associations and other healthcare-related stakeholders to maximize the benefits for patients and their care providers from Clinical Engineering expertise and healthcare technology, while minimizing technology risks and costs.

GCEA VISION

Optimize development and deployment of safe and efficient technological tools through transformation and alignment of global clinical engineering knowledge.





GCEA GOVERNANCE

Following dedicated and methodological work by the Founders' Council team Led by Calil Saide, Mladen Poluta and Nicolas Pallikarakis, the Constitution and Bylaws guiding the governance of GCEA are available at the GCEA website **CONSTITUTION_GCEA**.

GOVERNANCE DURING TRANSITIONAL PERIOD

A statement to clarify the governance during the transition period was drafted and approved by the Founders Council on July 27, 2020.



Founders' Council Declaration

The Founders' Council (FC) has been working on the initial development of the Global Clinical Engineering Alliance. The FC consists of volunteer experts in the Clinical Engineering field from around the world representing themselves as individuals who see the need for a unique and uniform international representation dedicated to the field. FC membership consists of the following individuals:

Stefano Bergamasco - Italy
Professor Saide Calil - Brazil
Professor Daniel Clark - UK
Dr. Yadin David - USA
Professor Li Bin - China
Keiko Fukuta - Japan
Thomas Judd - USA
Wayne Morse - USA
Shauna Mullally- Canada
Professor Nicolas Pallikarakis - Greece
Mladen Poluta - South Africa
Dr. James Wear - USA
Professor Tony Easty - Canada (retired)

The FC sees itself as serving in a temporary governance capacity for the sole purpose of leading the formation of GCEA into a self-administrering state of operation. This 'mandate' is not expected to last beyond 2022 or until such time as the first GCEA members assembly when officers are elected.

Please direct inquiries or comments to Wayne Morse, FC secretary.

'FC members are recognized for volunteering their service until GCEA holds its first annual members meeting and elects its officers'





Membership at GCEA can be pursued through one of the application categories available online GCEA | Memberships (globalcea.org).

Priority is placed on organizational membership, however, in recognition of the reality that many countries around the world still without national clinical engineering associations, or have associations that are dormant/inactive, individuals from such locations can elect to join as well. The categories of membership are followed on next page.

Capability Statement

With the collective experience of so many professionals working in every aspect of healthcare delivery and related support, GCEA has a wealth of knowledge of healthcare technology management and operation from around the world. Holding respect borne of its frontline members in hospitals and health settings, GCEA has the credibility to educate and promote technology-related governance regionally, nationally, and internationally.

Our stated aim is to have "one voice internationally" to represent the interests of Clinical Engineering and Health Technology Management professionals by promoting education and training, best practice, practical research, collaboration, professional competency, and innovation – all with the express goal of building cross-disciplinary alliances and thus increasing access to safe, integrated, and efficient healthcare system while improving patient experience, outcomes, and community wellness throughout the various global settings.

At the end of 2021, under the leadership of James Wear and the membership committee, GCEA has increased national association membership to nine (9) countries with a total member count of over 24,800 individuals. This membership straddles the European, Asian, American, and African regions. Next year larger focus will be placed on further growth of the GCEA membership village. In addition, there is also the opportunity to engage with GCEA around specific topics, projects, or goals that will be served better through wider collaboration. It would be inadvisable and risky to state that we would conduct health-related governance

Partners

The Alliance recognizes that there are also many organizations active in this or related fields who might wish to collaborate with GCEA on specific projects or in ongoing relationships to mutual benefit, but without wishing to become members. These **partner collaborations are also encouraged**.



MEMBERSHIP ORGANIZATIONS (MO)

- This is our primary membership category and is open to national and transnational societies and organizations representing clinical engineering partitioners (where this is interpreted in the broad sense to reflect local terminologies and structures).
- These societies and organizations -might- represent staff working in the field of clinical engineering in any employment setting: hospitals amd other-healthcare settings, universities, industry, private practice and governmental and non-governmental organizations.
- Organizational members have full voting rights, their members can stand for elected office within GCEA, they have full rights to join working groups and committees, and they have full access to all GCEA resources.

INDUSTRY BASED ORGANIZATIONS AND ASSOCIATIONS (IBO)

- Individual companies and trade associations working in the field of healthcare technology.
- These members have restricted voting rights, can join working groups and committees, and have full access to all GCEA resources.

INDIVIDUAL MEMBERSHIP (IM)

- Individual membership is generally reserved for individuals working in countries of the world that are not represented by an Organizational Member.
- GCEA encourages the formation of national and transnational membership associations/societies and will support individual members in their efforts to establish these.
- Individual Members have full rights to join working groups and committees and have full access to all GCEA resources.

OTHER RELATED PROFESSIONAL ORGANIZATIONS (PO)

- Healthcare-related professional bodies, including those for medical, nursing, scientific, allied health, social care, healthcare engineering, administration and medical physics practitioners.
- Professional Organizations have restricted voting rights, can join working groups and committees, and have full access to all GCEA resources.

INTERNATIONAL OR REGIONAL PHILANTHROPICALLY, POLICY THINK TANK, FOUNDATIONS (IPF)

- Active in the field of healthcare including charities, non-governmental organizations and not-for-profit groups
- These members have restricted voting rights, can join working groups and committees, and have full access to all GCEA resources.



EVERYONE BELONGS HERE



GCEA is committed to promoting **equality**, **diversity and inclusion** in our profession.

Our core mission is to represent clinical engineering professionals worldwide as we work together to improve the experiences of patients, their outcomes and the health and wellness of our communities. Being truly inclusive is essential to the achievement of these goals.

One of the strengths of our profession is our global and cultural diversity. This has been demonstrated time and again, particularly in the past two years as we have faced the SARS COVID-19 pandemic together. However, we still have work to do to address the inequalities inherent in our profession and the barriers faced by some to entering and shaping it in a meaningful way.

We are working towards a future that is more diverse and inclusive for all traditionally underrepresented voices such as women, people of colour, those of all ages and abilities, those with diverse gender and sexual identities, those from low-resource settings and those with diverse levels of professional qualifications.

A more equal profession is better placed to recruit and retain a workforce that is more reflective of the full spectrum of patients, families and communities we serve.It is good for them and good for us all – research consistently shows the benefits of diverse organizations including improved collaboration, decision making, creativity and performance.

GCEA is committed to promoting equality, diversity and inclusion through educating ourselves and others, evaluating our work through an EDI lens, listening to those traditionally not at the table, and motivating our members and partners to do the same.

Everyone belongs in our global professional village!



PROFESSIONAL DEVELOPMENT AND TRAINING

Under the leadership of Saide Calil the Professional Development and Training (PD&T) Committee was created and overcame startup barriers by maintaining laser sharp focus on addressing the needs for internationally delivered educational capacity building programs. The Alliance has retained an online education platform and recruitment of faculty for the first webinar series became a reality.

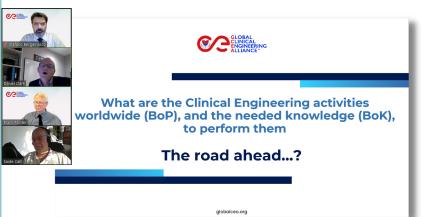
In general, the PD&T Committee will pursue both online and in-person activities and capacity-building opportunities. These may include ICEHTMC Congresses, other regional/national conferences, online webinars, short courses, and credentialling preparatory seminars.

Activities

Starting September 2021, the webinars are presented monthly with the participation of subject area experts from around the world. Faculty are selected based on their expertise, communication skills, and their match with subjects that are chosen by the Committee based on feedback received from the Global CE Summit and similar inputs. Subjects selected will cover different and diverse areas of interest with an eye on trends and both current and future needs of clinical engineering practitioners. In 2021, GCEA developed and delivered four webinars online on the following subjects:

GCEA WEBINARS

- 1. Why GCEA is Important for our Profession
- 2. Project Management for the Boss: Executive Sponsor
- 3. What are the CE activities worldwide (Body of Practice), and the needed knowledge (Body of Knowledge) to perform them
- 4. What must a Clinical Engineer know regarding Digital Health



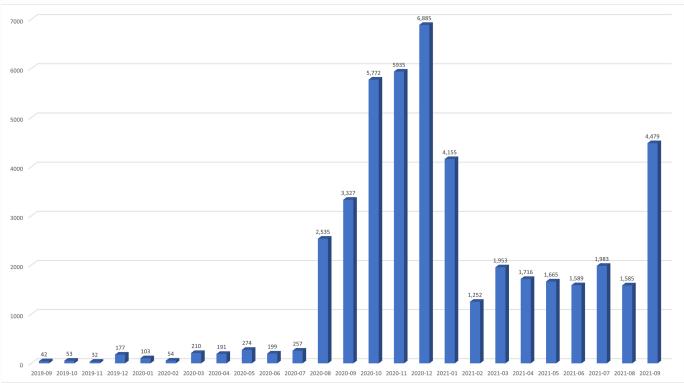
Additional webinars are planned for 2022 and short courses are under construction; these will focus in greater depth on topics that are of interest not only for clinical engineers and technologists but for other professionals and stake-holders working within the healthcare system.





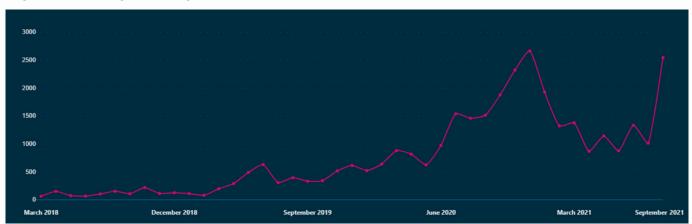
The Global Clinical Engineering Journal (www.GlobalCE.org) is an online, free, independently governed, quarterly publication that is affiliated with GCEA and serves as its scientific publication outlet. It is the only international Clinical Engineering Journal uniquely focused on clinical engineering and health technology management topics. Clinical Engineering and health professionals are members of the distinguished Editorial Board. The community of volunteer reviewers is growing, standing now at over 200 and readership has grown steadily.

DOI RESOLUTION* SUCCESSES PER MONTH



*The statistics are based on the number of DOI resolutions through the DOI proxy server (https://doi.org/) on a month-by-month basis. These statistics give an indication of the traffic generated by users clicking DOIs.

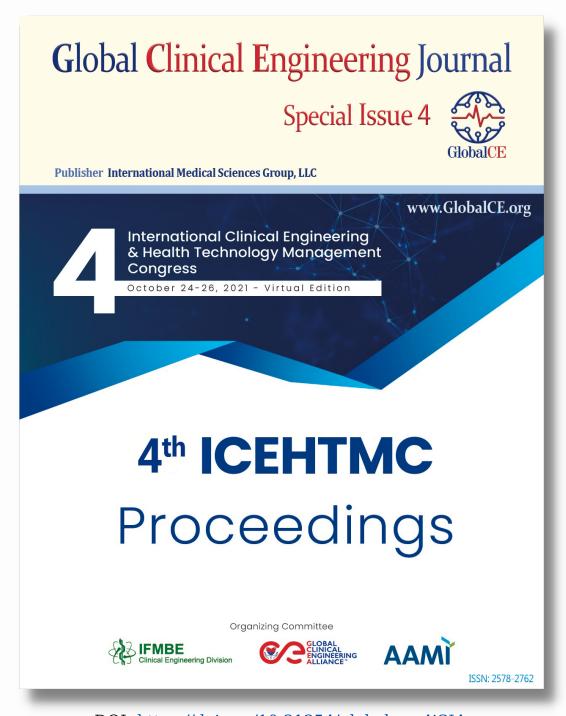
MONTHLY ARTICLE VIEWS







Recently, the Journal undertook the major work of collecting, formatting, and publishing the abstracts, keynote speeches, and short courses from 125 countries represented at the 4th International Clinical Engineering & Health Technology Management Congress and made these and related video recordings available online free of charge (see www.globalcea.org/icehtmc).



DOI: https://doi.org/10.31354/globalce.v4iSI4

GLOBAL CLINICAL ENGINEERING DAY CELEBRATION



In commemorating the date of the first International Clinical Engineering & Health Technology Management Congress (ICEHTMC) in 2015, viz. October 21, every year since has seen the clinical engineering global village celebrate contributions made by clinical engineering professionals around the world towards the improvement of patient care outcomes. The reasons for celebrating are evident and are listed in the publication that highlighted 400 such achievements: "Impact Analysis: CE Success Stories (Clinical Engineering Handbook, 2nd edition, Academic Press, Chapter 39, pp. 243-252, 2020). The number of countries participating has been grown from the first year to presently include every continent. Visitors have been educated and enjoy reading and watch videos archived at GCEA | Global CE Day (globalcea.org). This event serves as another demonstration of the benefits the field derives from collaboration between GCEA and IFMBE/CED. Due to the large volume of submitted content and that October 21 may fall on weekends, considerations have been given to expanding the celebration to a week, renaming the recognition event to "Global Clinical Engineering Week Celebration".



"Knowing that our service is meaningful makes my mission easier and myself the happiest person"

GLOBAL CLINICAL ENGINEERING SUMMIT



The international community of clinical engineering professionals has historically lacked opportunities to identify whether common international challenges exist, and when possible to rank order their significance. This changed during the Ist ICEHTMC held in Hangzhou, China in October 2015.



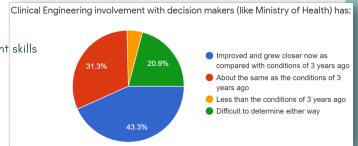


30 experts from around the world convened, including representatives from WHO, and debated and articulated a list of common challenges. They proposed an action plan that resulted in collection of evidence-based achievements towards improvement of patient care outcomes made by clinical engineering professionals. This <u>manuscript was published</u> and presented at the World Health Assembly noting that **Together, we can make it Better**.

Every two years the Global CE Summit is convened as part of an ICEHTM Congress and the list of challenges is updated, ranked, and the next action plan drafted. From the modest start in Hangzhou the Summit has grown to a much larger event, the most recent being the IV ICEHTM virtual congress held in October 2021 (IV ICEHTMC Materials Pre Congress). Following presentations by members and the online vote by 85 representatives from 51 countries, the following list of challenges was arrived:

- Capacity Building (>30% of the vote)
 - Ongoing training throughout a career
 - Publications of best practices
 - Development of programs for improving CE management skills
 - Digital Health strategies
- Impact Measurement (<30% of the vote)
 - Evidence based benefits of engaging CE
 - Improved engagement with decision-makers
 - Maximizing use of emerging CE tools
- Lack of Uniform BOK & BOP (10% of the vote)
 - Improving common elements of professional CE competencies
- Improve Professional Recognition (10% of the vote)
 - Promoting CEs skills to the healthcare community and to the public
- Lack of Professional Practice Standards (10% of the vote)
 - Promote and coordinate professional credentialing programs
- Raise Role & Recognition of National CE Societies (10% of the vote)
 - Help grow national CE societies through GCEA

GCEA will continue to facilitate opportunities for recognizing the most important challenges to the CE village and together with IFMBE's Clinical Engineering Division and other key stakeholders such as WHO will work to address them.







Participations in international events

During the past year GCEA's vision, mission and purpose were presented and contributed to building professional consensus between national Clinical Engineering conferences in Brazil, China, Italy, and Japan as well as in cross discipline engagement at the 44th Congress of the International Hospital Federation (IHF).





Management of Health Technology - Lessons Learned from COVID-19

Towards an integrated concept of health and care services model: Value driven transformations

Yadin David¹, Thomas Judd²

¹ Interim President, Global Clinical Engineering Alliance, ² IFMBE/CED Chairman Contact Details: <u>David@BiomedEng.com</u>

Background

Dependence of provisioning of healthcare services on health technology (HT) tools is at all-time high and expected to grow further. It's critical, therefore, that plans are adopted to optimally sustain capacity to manage such needed resources to meet the challenges experienced over a pandemic era. WHO reports that only 34% of member countries have IT mational polety that is part of the national health program for Medical devices (who.int)!. These conditions suggest reasons that the world was ill-prepared, neither equipped with plans/programs, focusing on resilient technological capacity to meth healthcare services need as experienced during global devestation from COVID-19. Soveram for temporary isolated care spaces, of staff protection supplies https://doi.org/10.1006/journal-national-read-ended-lause/lies, of staff protection supplies <a href="https://doi.org/10.1006/journal-national-read-ended-lause/lies, of staff protection supplies <a href="https://doi.org/10.1006/journal-national-read-ended-lause/lies, of staff protection supplies <a href="https://doi.org/10.1006/journal-national-read-ended-lause/lies, and mechanical wentiliators and oxygen-for support patient's care outcomes and expectations.

Accomplished

ACCOMPINISHEE
In response to WHO request, in March 2020, GCEA⁷ and IFMBE⁸ developed rapid communication platform to network, educate, and timely exchange of best practices supporting clinical engineering practitioners facing technology issues at the point-of-care, created a COVID-19 Resources website, initiated hacking COVID-19 website for vetted technology-related publications that is updated daily, ramped up WhatsApp that reaches 200 members in nearly 70 countries. In addition, we initiated two virtual training programs, engaging multidiscipline stake holders, on critical technology management topics^{3,10}, on Oxygen delivery, Ventilators, PPE, Cybersecurity, Vaccines, and pulse oximetry.

Each technical training session covered the following:

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- Need to address better policies and coordination to optimally manage all phases of technolog
- life-cycle from innovation, to manufacturing, commissioning, servicing and use. HT assets registry assessment, that is continuously updated, clinically and technically ranked, and its management sourced at each level local/regional/national/global lead to more efficient allocation of limited resources and system resiliency.
- Promotion of open system support of local engineers to timely access international supply chains that facilitate procurement critical medical products, replacement parts, accessories, and service data.
- Provisioning of virtual training in multiple linguistics to increase local capacity of engineers/technicians to maintain performance of medical product/systems in patient-ready state.
- of medical product/systems in patient-ready state.

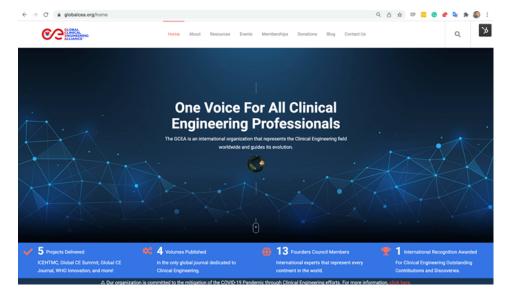
 Benefits from international alliance that focuses on management of point-of-care technologies, and its life-cycle, will facilitate promotion of local production, adoption of best practices, and expediting resolution by sharing of "problem already solved elsewhere". Launching of dedicated Global Clinical Engineering Alliance during the pandemic already delivered results by engaging clinical engineering expertise from point-of-care to assess innovative technologies submitted to WHO to address COVID-19 needs in low resources regions¹¹.
- Critical need for healthcare decision-makers to engage the expertise of clinical engineering practitioners in the development and implementation of disaster preparedness plans thus improving system resiliency and predictable care outcomes.
- Call to engage healthcare decision-makers and clinical engineering capacity in joint programs improving resources utilization and outcomes.

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GCEA participation to the IHF

GCEA submitted a poster to the IHF International Congress in Barcelona, Spain and for the first time Clinical Engineering posters with audio recording were included in an IHF Congress.







Online Presence

During the short period, since the website went live the growth is evident:

98,736 Website visits (Touches)

8,228 Average page visits, translating to 271 daily visits.

The 3 top visited pages were:

- 4th ICEHTM Congress material
 - a. **2,585** Registrants
 - b. 323 Assistants
 - c. 1 dedicated ZoomTopia events Platform

Configured

- d. 6 GCEA Website Pages created
- e. **3,314** GCEA Congress Page Visits (Touches)
- Hacking COVID-19 daily Update
 - a. **1,183,580** Touches
- 3. Home page.

In a world changed fundamentally by the Covid pandemic - with rapid communication and online networking the new normal most organizations and individuals live, interact, learn, work, socialize and entertain/are entertained via digital communication. Therefore, GCEA has established a dynamic presence in the 'internet of things' through its own dedicated website, social media outreach, streaming video channel, and electronic e-mail campaigns. The GCEA website (www.GlobalCEA.org) is a rich source of up-to-date material.

"Social media recorded 844,987 Touches and Mailing recorded 3,668 Touches.

In total we reached 2,137,953 Touches in 2021, and we have just started!"



GCEA BUDGET

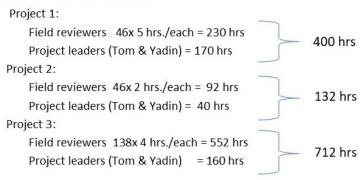
Global Clinical Engineering Alliance (GCEA) is a not-for-profit international organization, registered in Washington, USA.

INCOME

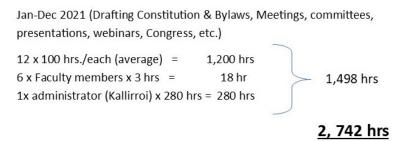


IN-KIND CONTRIBUTIONS

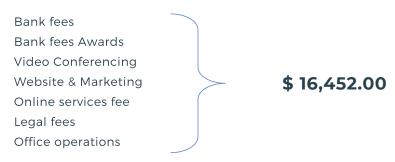
WHO work contracts related



FC members activities



EXPENSES



December 31, 2021

BALANCE

\$49,361.66*

GCEA HTF Foundation



To build and sustain GCEA's ability to promote future research and evidence collection relating to how technology, its management and patient care outcomes are connected, additional resources are needed. Founded in 2002 as a charitable, educational and engineering-focused entity, the not-for-profit Healthcare Technology Foundation (HTF) has been focusing primarily on USA healthcare issues. However, HTF's future strategy has been evolving through a symbiotic relationship with GCEA leadership.

HTF's mission is to Improve healthcare delivery outcomes by promoting the development, application, and support of safe and effective healthcare technologies. This aligns closely with GCEA's mission to Build an international foundry for leveraging national Clinical Engineering association and other healthcare related stakeholders to maximize the benefits for patients and their care providers from Clinical Engineering expertise and healthcare technology, while minimizing technology risks and costs. Both the HTF and GCEA promote public awareness and educational programs.

Following unanimous approval by both the HTF board and GCEA leadership, legal documents were executed transitioning HTF onto the international stage under the GCEA structure as the GCEA HTF Foundation.

World Health Organization (WHO)



Amongst the significant achievements this year was the qualification of GCEA as a contractor, seen as an "international professional not-for-profit association of clinical engineers". This status allowed GCEA to conduct an assessment of health technology innovations that the WHO planned to include in their Compendium of Innovative Health Technologies for Low Resource Settings (https://www.who.int/publications/i/item/9789240032507).

Two contracts – one for the 2021 Compendium and the other for the 2022 Compendium – were successfully completed at the end of December 2021 in close collaboration with and support from Thomas Judd, Chair of IFMBE's Clinical Engineering Division board. Many GCEA and CED members participated in the field evaluation under a short timeline, with GCEA issuing final reports for each of the projects with very favourable feedback from WHO counterparts. Over 1,000 hours of volunteer work were invested in these projects, with \$62,000 added to the GCEA treasury. Big appreciation is extended to all who workedon these important COVID-19 related two projects.

RECOGNIZING EXCELLENCE

Japan Association for Clinical Engineers (JACE) won the 1st GCEA award in recognition of the outstanding contribution made in support of the global clinical engineering profession through international collaboration

Congratulations





promote models for excellence in international cooperation, GCEA established a recognition program. This program aims to honor, share and promote exemplary models for organizations and individuals whose expertise, passion and practice made outstanding contributions that impact the field of clinical engineering and/or healthcare outcomes. This recognition program has been created and led by the Awards Committee under Ms. Keiko Fukuta's leadership in accordance with the GCEA Bylaws. This year was the first time that the Collaborative Capacity Building recognition was awarded. It was given to the Japan Association for Clinical Engineers (JACE) in recognition of their outstanding contribution made in support of the global clinical engineering profession through international notably for JACE collaboration. work Candidates for future awards can be proposed by submitting information online at GCEA Awards.

GCEA village invites you to Engage, Act and Deliver results!