2023

GLOBAL CLINICAL ENGINEERING ALLIANCE™

STATE OF THE ALLIANCE

Uniting The Clinical Engineering Profession Across the Globe

www.globalcea.org

GLOBAL CLINICAL ENGINEERING ALLIANCE™

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Uniting The Clinical Engineering Profession Across the Globe

PRESIDENT LETTER

Written by Yadin David

Focusing on the benefits derived from cooperation and collaboration, I began like others in the Clinical Engineering field over a decade ago, to stamp presentations with “Together We Can Do It Better.” The past four years our world has been engulfed in fighting unprecedent pandemic that clearly demonstrated that local healthcare is a global issue. Loss of lives, emotional pain, psychological devastation, involuntary loss of employment, and damaged economies were unfortunately only some of the lessons the world has learned. This highlighted the need for understanding the critical role of closer international cooperation. As healthcare programs’ dependency upon technology for the delivery of their services has grown to an all-time high, and the trend projected to continue in the same direction. Even prior to this pandemic era, we learned from international surveys of clinical engineering professionals, conducted in 2017 and published in 2019, that the benefits from a more connected and collaborative world are important to the state of healthcare services and especially to the clinical engineering (CE) field. The published conclusions of these globally-based surveys point to the lack of an international platform for the exchange of knowledge and professional collaboration. It specifically states that **“The data also sufficiently demonstrate a clear and overwhelmingly positive response for the value seen in having an international organization that will focus on CE needs (612 responses) as well as for the 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 product innovation, advanced manufacturing, safe patient experience, predictable clinical outcomes, and efficiency in resource utilization. It is therefore important that the C.E. field will together focus on the development and sustainability of its human capacity to fill this role, advancing unique competency in delivering their services, and increasing working partnerships with other stakeholders.

Clinical engineering practitioners contribute to the creation of innovative tools - solutions for provisioning patient-ready and safe products with a vast scope of networked devices. Whether a C.E. practitioner is involved with repairing sterilizers and oxygen generators in rural locations where spare parts are hard to come by or in a large medical center implementing cybers security guardrails the basic tenets of medical technology management apply. Engineering, technology, and life sciences education made competent practitioners.

Contribution to the early change became visible in 2015, when CE leaders initiated a series of collaborative events offering opportunities to share knowledge, best practices, body of practice, and identified plans for future joint professional development activities and advocacy promoting awareness for our profession.

Events created include: the 1st International Clinical Engineering & Health Technology Management Congress (ICEHTMC) in China www.icehtmc.com, followed by bi-annual Congresses in Brazil, Italy, USA, and now in India. The 4th Congress was successfully completed in October2021, and the 5th ICEHTMC includes events such as the 8th Global Clinical Engineering Day celebration, the 5th volume published by the Global Clinical Engineering Journal (www.GlobalCE.org), the 2nd Global CE collaborative and Best Technician/Technologist awards, and the 4th Global Clinical Engineering Summit (globalcea.org).

These events were jointly administered in collaboration with IFMBE/CED, and others. This collaboration initiatives brought about by GCEA vision, is unique, and stands to benefit the whole international clinical engineering village while contributing to better patient-care outcomes. As a member of the Alliance, you too can say **Together We Can Make it Better!**

"Next year larger focus will be placed on engaging more of the GCEA village members!"

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.

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, identified 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 increase access to and improve safe care outcomes as has been demonstrated by successfully completion of two (x2) international 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 creatingCOVID-19 scientific and engineering literature resources, and new educational webinars focusing on addressing health priorities. Arguably, a solid beginning for the young global clinical engineering village.

GCEA MISSION

Become 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 the development and deployment of safe, connected, and efficient technological tools through collaboration and alignment of **global clinical engineering knowledge and competency.**

- INCITE
- CONNECT
- EDUCATE
- ADVOCATE

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 articles guiding the governance of GCEA were ratified and are available at the GCEA website.

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 documenting the guidelines to administer the not-for-profit organization with an inclusion view and mission focus minds. Initial development of the Global Clinical Engineering Alliance. The FC consists of volunteer experts in the Clinical Engineering field from around the world acting as individuals who see the need for a unique and uniform international representation dedicated to growing the C.E. field and its national associations. FC membership consists of the following individuals:

'FC members are experts recognized for volunteering their service until GCEA holds its first annual members meeting and elects its officers in November 2023'

The FC sees itself as serving in a temporary governance capacity for the sole purpose of leading the formation of GCEA into a self-administering state of operation. This 'mandate' is not expected to last beyond 2023 or until such time as the first GCEA members organizations assembly when officers are elected.
Please direct inquiries or comments to Kallirroi Stavrianou, GCEA secretariat.

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

GCEA GOVERNANCE

Yadin David

USA / President

Mladen Poluta

ZAF / President Elect

Calil Saide

BRA / Past President

Nata Zaman

UK / Secretary General

Pedro de Britto Moreira Neto

BRA/ TREASURER

Kallirroi Stavrianou

UK/ Manager

Keiko Fukuta

JAP / ADVISORY COUNCIL MEMBER

Tom Judd

USA / ADVISORY COUNCIL MEMBER

Shauna Mullally

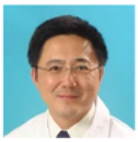
CAN / ADVISORY COUNCIL MEMBER

Stefano Bergamasco

ITA / ADVISORY COUNCIL MEMBER

Daniel Clark

UK / ADVISORY COUNCIL MEMBER



Li Bin

CHI / ADVISORY COUNCIL MEMBER

Nicolas Pallikarakis

GRE / ADVISORY COUNCIL MEMBER

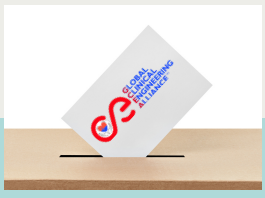
Wayne Morse

USA / ADVISORY COUNCIL MEMBER

James Wear

USA / ADVISORY COUNCIL MEMBER

"These people have done excellent work in the past years globally serving our profession and patients."



THE FIRST ELECTION OF THE OFFICERS FOR THE GLOBAL CLINICAL ENGINEERING ALLIANCE TOOK PLACE ON NOVEMBER 2023

GCEA MEMBERSHIP

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 are still without national clinical engineering association, 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, resource utilization and community wellness throughout the various global settings.

At the end of 2023, under the leadership of James Wear and the membership committee, GCEA has increased **national association membership** to **twenty seven (27) countries** with a **total member count of over 33,034** individuals. This membership straddles the European, Asian, Australian, 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.

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 Categories

GLOBAL CLINICAL ENGINEERING ALLIANCE™

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 and 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.

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.

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.

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.

GCEA MEMBERS

Hellenic Society of Biomedical Technology
GREECE

INBIT - Institute of Biomedical Technology
GREECE

AIIC - LÁssociazione Italiana Ingegneri Clinici
ITALY

JACE - Japan Association for Clinical Engineers
JAPAN

ABECLIN - Brazilian Association of Clinical Engineering
BRAZIL

CMBES - Canadian Medical and Biological Engineering
CANADA

IPEM - Institute for Physics and Engineering in Medicine
UNITED KINGDOM

BEAI - Biomedical / Clinical Engineering Association of Ireland
IRELAND

CEASA - The Clinical Engineering Association of South Africa
SOUTH AFRICA

APBIO - Peruvian Association for Bioengineering
PERU

CIB Mexican College for Biomedical Engineering
MEXICO

TBIO - Tanzania Bio-Electronics Information Organization
TANZANIA

TNBMEA - Tamilnadu Biomedical Engineers Association
INDIA

AMTZ - Andhra Pradesh MedTech Zone Limited
INDIA

Verlab Research Institute for biomedical engineering, medical devices and AI
BOSNIA & HERZEGOVINA

AFIB - French Association of Clinical Engineering
FRANCE

SEEIC - Spanish Society of Electromedicine and Clinical Engineering
SPAIN

FLWH - Foundation for Living, Wellness, and Health
USA

ASSOCIATES

Association for the Advancement of Medical Instrumentation
USA

International HealthTechScan
Europe

INDIVIDUALS

Individuals from countries without an Association Member at GCEA

Pedro Galván (Paraguay) PY
Mohamed M. Omer (Sudan) SD
Victor Makwinja (Malawi) MW
Greg Cabral (Belize) BZ
Jean Ngoie (UK) GB
Christopher Nowak (USA) US
Freddy Matamoros Espinoza (Ecuador)
Manish Kohli MD (USA) US
Michael Walton (UK) GB
Fred Walter Hosea (Ecuador) EC

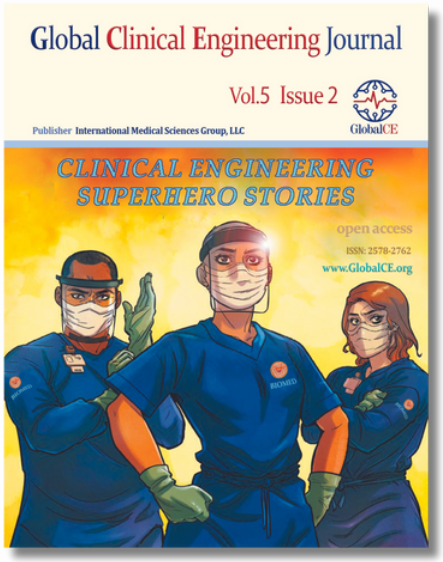
EVERYONE BELONGS HERE

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!

GLOBAL CE JOURNAL

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 400 and readership has grown steadily.



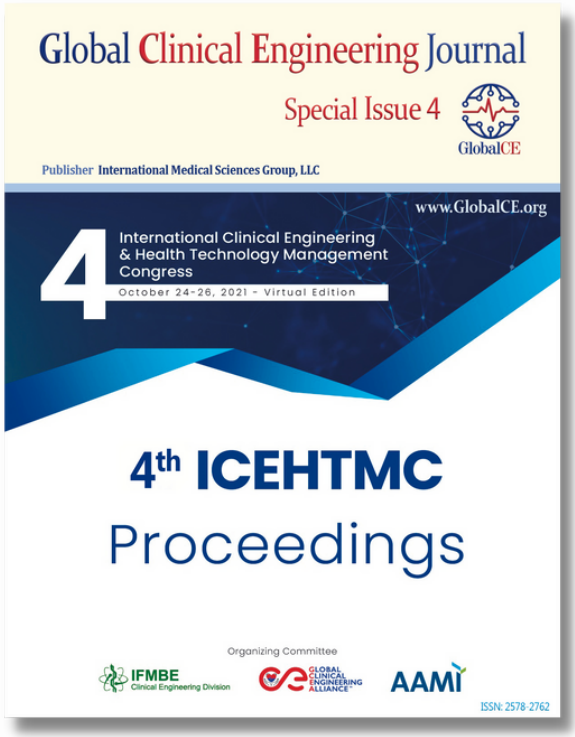
Global CE Journal participated in the 'Meet the Editors' invited session in Medicon 2023, in Sarajevo, B&H

Not every day a moving robot can play the role of a Journal Editor-in-Chief! However, during the 16th Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON) that took place in Sarajevo, B&H, in September 2023, a self-rolling robot educated the audience about recent accomplishments of the Global Clinical Engineering Journal. The Journal Manager (Dr. Kallirroi Stavrianou) delivered a full presentation during the 'Meet the Editors' Session, and the rolling robot (Editor-in-Chief, Dr. Yadin David) interacted with the audience who enjoyed this new technological application.

GLOBAL CE JOURNAL

The Journal has undertaken the major work of collecting, formatting, and publishing the abstracts, keynote speeches, and short courses from the **3**rd, **4**th and **5**th **International Clinical Engineering & Health Technology Management Congress**.

DOI: https://doi.org/10.31354/globalce.v2i0



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

DOI: https://doi.org/10.31354/globalce.v5iSI5

GLOBAL CE JOURNAL

We are thrilled to announce that our **Global Clinical Engineering journal** has recently been **indexed in Scopus**, the largest abstract and citation database of peer-reviewed literature. This is an exciting development for the journal and reflects the high-quality writing and research that our authors have been producing. With this indexing, Global CE journal is now easily discoverable by researchers, academics, and practitioners worldwide, who rely on Scopus to find high-quality research articles. This will help to increase the visibility of **the only journal dedicated to Clinical Engineering** and to provide an even broader readership for authors.

Now, more than ever, you have all the reasons to publish your work in Global CE Journal!

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"

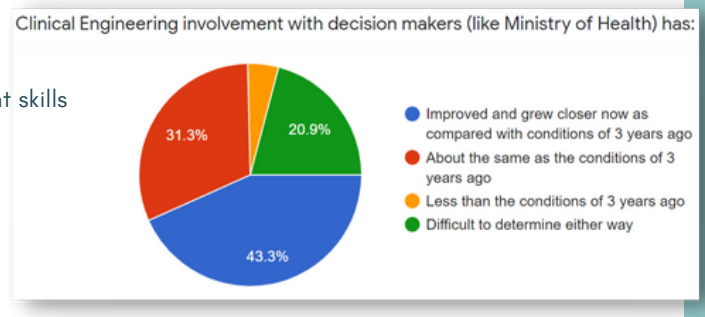
GLOBAL CLINICAL ENGINEERING SUMMIT

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 1st ICEHTMC held in Hangzhou, China in October 2015.

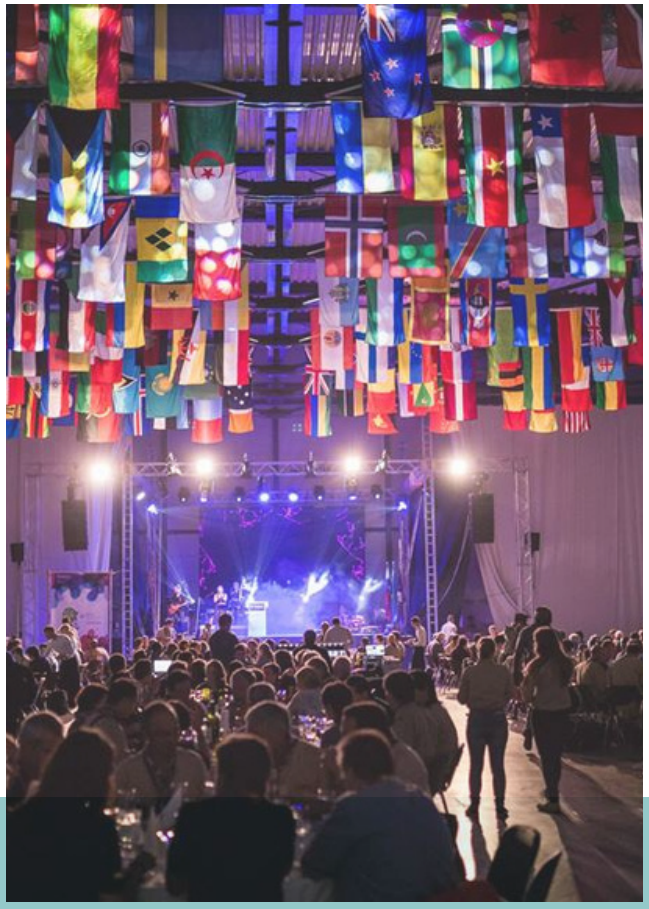
30 experts from around the world convened, including representatives from WHO, and debated and articulated a list of common challenges. They proposed an action plan that resulted in collection of evidence-based achievements towards improvement of patient care outcomes made by clinical engineering professionals. This manuscript was published 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).

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.

GLOBAL CLINICAL ENGINEERING ALLIANCE

IFMBE Clinical Engineering Division

Management of Health Technology – Lessons Learned from COVID-19

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

Yadin David[1], Thomas Judd[2]

[1] Interim President, Global Clinical Engineering Alliance, [2] IFMBE/CED Chairman

Contact Details: David@BiomedEng.com

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 the pandemic era. WHO reports that only 34% of member countries have HT national policy that is part of the national health program for Medical devices (who.int)[1]. These conditions suggest reasons that the world was ill- prepared, neither equipped with plans/programs, focusing on resilient technological capacity to meet healthcare services' needs as experienced during global devastation from COVID-19. Severe shortages of; temporary isolated care spaces, of staff protection supplies https://hbr.org/2020/09/why-the-u-s-still-has-a-severe-shortage-of-medical-supplies[2], of mechanical ventilators[3] and oxygen[4,5] to support patient's airway, of vital monitoring and telehealth support, and poor supply chain of needed replacement parts – at local/regional/national/global levels all negatively impact patient's care outcomes[6] and expectations.

Accomplished

In response to WHO request, in March 2020, GCEA[7] and IFMBE[8] **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[9,10], on Oxygen delivery, Ventilators, PPE, Cybersecurity, Vaccines, and pulse oximetry.

Each technical training session covered the following:

1. Clinical needs/requirements
2. Supply of necessary equipment & accessories, and operation / support
3. Availability of support/maintenance materials, eg. Operator and Service Manuals in correct language, including related donation issues, accessories, etc.
4. Specific training for safe/effective operation, integration, and support
5. Coordination of related Critical Topic activities at local care delivery & national levels
6. Decontamination and Disinfection, sterilization protocol
7. Systems approach and safety management for all of the above

Lessons learned

- Need to address better policies and coordination to optimally manage all phases of technology 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.
- 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 regions[11].
- 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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2. Harvard Business Review, **Why the U.S. Still Has a Severe Shortage of Medical Supplies, Sept. 2020,** https://hbr.org/2020/09/why-the-u-s-still-has-a-severe-shortage-of-medical-supplies
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6. **Three more COVID-19 patients dead in 'accident' at Bucharest hospital, The Advisor, April 2021, Bucharest COVID-19 patients dead: Romania cursed by 'accidental' deaths | The Advertiser (adelaidenow.com.au)**
7. Global Clinical Engineering Alliance, **Hacking Coronavirus Repository,** Hacking Coronavirus Content Repository (globaleen.org)
8. IFMBE/Clinical Engineering Division, **COVID-19 Resource Center,** IFMBE/CED COVID-19 Resource Center
9. WHO & CED COVID-19 Critical Topics Webinars WHO & CED COVID-19 Critical Topic Webinars (diubz.org)
10. Global Clinical Engineering Alliance, **Clinical Engineering Materials,** CE Relevant Documents (globaleen.org)
11. World Health Organization (WHO), **WHO compendium of innovative health technologies for low-resource settings 2021. COVID-19 and other health priorities,** August 2021, **https://www.who.int/publications/i/item/9789240032507**

GLOBAL CLINICAL ENGINEERING ALLIANCE™

Online Presence

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.

During the last 3 years since the website went live the growth is evident:
754,000+ Website visits (Touches)
23,000+ Average page visits,
with high engagement rate:

PAGE VIEWS / SESSION	AVERAGE SESSION LENGTH
1.83	125 seconds

GCEA Social media recorded more than 2,542K Touches in total and Mailing recorded more than 169K Touches counted in 2023.
In total GCEA reached more than reached more than 1,000,000 Touches in 2023.
Over 1,500,000 touches during the 2023 Global CE Day celebration -broadcasted from China-
...and we have just started!

GCEA BUDGET

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

INCOME

Balance forwarded from 2020
Donations
Membership
Grants/Contractual services

$65,813.66

IN-KIND CONTRIBUTIONS

WHO work contracts related

Project 1:
- Field reviewers 46x 5 hrs./each = 230 hrs
- Project leaders (Tom & Yadin) = 170 hrs

400 hrs

Project 2:
- Field reviewers 46x 2 hrs./each = 92 hrs
- Project leaders (Tom & Yadin) = 40 hrs

132 hrs

Project 3:
- Field reviewers 138x 4 hrs./each = 552 hrs
- Project leaders (Tom & Yadin) = 160 hrs

712 hrs

1,244 hrs

FC members activities

2022-2023 (Drafting Constitution & Bylaws, Meetings, committees, presentations, webinars, Congress, etc.)

12 x 100 hrs./each (average) = 1,200 hrs
6 x Faculty members x 3 hrs = 18 hr
1x administrator (Kallirroi) x 280 hrs = 280 hrs

1,498 hrs

Committes 5 x 6 x 100 hrs. x 2 = 3,000 hrs

4,498 hrs

EXPENSES

Bank fees
Bank fees Awards
Video Conferencing
Website & Marketing
Online services fee
Legal fees
Office operations

$ 26,452.00

October 31, 2023 **BALANCE** **$99,361.06***

* This is a preliminary unaudited report

GCEA HTF Foundation

To build and sustain GCEA's ability to promote future research and collection of evidence relating to technology creation & adoption, its management and impact on patient care outcomes are all 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 that led to the integration of HTF with GCEA.

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 worked on these important COVID-19 related two projects.

RECOGNIZING EXCELLENCE

To 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. Candidates for future awards can be proposed by submitting information online at **GCEA Awards**.

New GCEA Award categories will be announced!

Congratulations to all winners!

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

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 pursues both online and in-person activities and capacity-building opportunities. These includes ICEHTMC Congresses, other regional/national conferences, online webinars, short courses, and credentialling preparatory seminars.

Activities

GCEA Webinars and Talk Series 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 2023, GCEA has already developed and delivered webinars and GCEA Talks:

GCEA Educational Platform

- **20 Webinars**
- **7 GCEA Talks**

Additional webinars are planned for 2024 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.

Two more projects are being planned for 2024; a GCEA clinical engineering book focusing the operational site of the clinical engineering field, that will offer support to the international course, and a series of round tables where one to three specialist will present and discuss with the virtual participants a pre-defined subject.

ANNUAL MEMBERSHIP COMMITTEE REPORT

Chair: James O. Wear, USA; Committee Members: Saide Calil, Brazil; Tom Judd, USA; Nicolas Pallikarakis, Greece; Mladen Poluta, South Africa.

The Membership Committee is responsible for processing applications for membership from organizations and individuals. The applications are reviewed to be sure that all information is provided and it is in English. A determination is made with organization applications into which category they should be processed. These applications are then reviewed to determine if they can become members. The individual applications are processed to determine if the individual is a clinical engineer practitioner and if they meet the By-law requirements. The Membership Committee recommendations are presented to the GCEA Founder Council for approval. The following organizations have become members of GCEA.

MEMBER ORGANIZATIONS

- **ELEVIT** - Hellenic Society of Biomedical Technology
- **AIIC** - Ássociazione Italiana Ingegneri Clinici
- **JACE** - Japan Association for Clinical Engineers
- **ABECLIN** - Brazilian Association of Clinical Engineering
- **CMBES** - Canadian Medical and Biological Engineering
- **IPEM** - Institute for Physics and Engineering in Medicine
- **BEAI** - Biomedical / Clinical Engineering Association of Ireland
- **CEASA** - The Clinical Engineering Association of South Africa
- **APBIO** - Peruvian Association for Bioengineering
- **TNBMEA** - Tamilnadu Biomedical Engineers Association
- **AFIB** - French Association of Clinical Engineering
- **SEEIC** - Spanish Society of Electromedicine and Clinical Engineering

IBO ORGANIZATIONS

- **AMTZ** - Andhra Pradesh MedTech Zone Limited
- **Verlab** Research Institute for biomedical engineering, medical devices & AI

IPF ORGANIZATIONS

- **INBIT** - Institute of Biomedical Technology
- **FLWH** - Foundation for Living, Wellness, and Health

The total membership of these organizations is about 34,000.
Individual applications are reviewed by the Chair and rejected if there is a MO member in their country. A rejection email is sent with a recommendation that they become involved with the MO organization in their country.
Non-rejected IM applications are submitted to the committee for vote on recommendation of membership to the Founder's Council. When selected by the Founders' Council a letter and invoice are sent. The number of IM applications that have been received is 30 and 23 have been approved for membership. When organizations and individuals pay their invoice they are added to the GCEA website. Letters have been sent to the MO Organizations to submit nominations for membership on the GCEA Committees. Letters have also been sent to the IM members to encourage them to have organizations in their countries to consider joining GCEA.

EQUITY, DIVERSITY AND INCLUSION GROUP REPORT

Members: Dan Clark, UK; Shauna Mullally, Canada

The core mission of GCEA 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 this mission.

The strength of GCEA comes from our global and cultural diversity, but we know we have work to do to address inequalities and the barriers faced by many entering our profession and trying to shape it in a meaningful ways.

GCEA is committed to promoting equality, diversity and inclusion in our profession and we have set out some initial goals for our ambitions, which include:

- establishing equality, diversity and inclusion at the heart of all we do;
- creating a culture throughout all parts of our organisation where inclusivity is a natural part of all that we do;
- developing accessible training and educational resources in collaboration with key international partners;
- producing special sessions in our Global Clinical Engineering Journal and dedicated tracks in future conferences
- developing audits and reviews to evaluate our work through an EDI lens

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. We are ambitious to ensure the future of clinical engineering is truly inclusive, to unleash all the talents to support our profession and the people we service.

THE NEW GLOBAL CLINICAL ENGINEERING ALLIANCE AWARD

Global Academic Award for Outstanding Contributions to the Clinical Engineering Discipline

The **"Global Academic Award for Outstanding Contributions to the Clinical Engineering Discipline"** is a prestigious recognition given to individuals or organizations for their exceptional achievements and contributions to the field of Clinical Engineering. Clinical Engineering is a specialized discipline of life science engineering that focuses on innovation, management, and assessment of technology in healthcare settings to ensure their safety, effectiveness, efficacy, and regulatory compliance. The Excellence Award in Clinical Engineering Education is an honor bestowed upon individuals who have demonstrated outstanding academic achievements and contributions in the field of Clinical Engineering.

The award is named after two models of academic Clinical Engineering excellence, both were recognized posthumously. Professors **William Hyman** of College Station, Texas, USA, and **Jiang Yuanhai**, Beijing, China, both were models for unparalleled dedication and proficiency in the Clinical Engineering discipline. A vital component of modern healthcare, where technological innovation intersects with patient care, ensuring the safety, efficiency, and effectiveness of medical equipment and systems. The accomplishments of these educators who have excelled in sharing their pursuit of knowledge and skills in clinical engineering, teaching, writing, publishing, researching, and establishing new periodicals, and professional associations, which plays a vital role in the wider impact on the global healthcare industry.

This prestigious award celebrates the accomplishments of these two educators who have not only excelled academically but have also made significant contributions to the advancement of clinical engineering education. Recipients of this award, likewise, are expected to demonstrate the following qualities:

1. **Exceptional Academic Achievement:** Awardees have consistently maintained high academic standards, exhibiting mastery of the principles and practices of clinical engineering. Their academic education contributions records reflect a commitment to excellence in coursework, research, and practical application.
2. **Innovative Thinking:** Recipients have shown a propensity for creative problem-solving and innovative thinking in addressing the complex challenges of clinical engineering. They have contributed to cutting-edge research or the development of novel solutions (technologies, tools, methods) that have improved healthcare technology performance and patient outcomes.
3. **Patient Safety:** Making notable efforts to improve patient safety through the effective management and maintenance of medical devices and equipment.
4. **Leadership and Mentorship:** Awardees have not only excelled individually but have also demonstrated leadership qualities within the clinical engineering community. They have served as mentors, guiding, and inspiring the next generation of clinical engineers, and have played a role in fostering a collaborative and inclusive learning environment.
5. **Collaboration and Engagement:** Beyond the classroom and laboratory, recipients have actively engaged with the broader clinical engineering community. Facilitating collaboration between clinical engineers, healthcare professionals, and the medical device industry to enhance the quality of healthcare technology. They may have participated in conferences, published research papers, or undertaken projects that have had a positive impact on the field.
6. **Ethical and Professional Standards:** Awardees uphold the highest ethical and professional standards in their work. They prioritize patient safety, adherence to regulations, and the ethical use of technology in healthcare.