



ACCE News

Newsletter of the American College of Clinical Engineering

November—December 2021

Volume 3 | Issue 6

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President's Message



Dear ACCE Community,

I trust that each of you are safe and healthy! A few days ago we celebrated Veteran's Day and I would like to express my sincere gratitude to each of you that have served in the United States Armed Forces. Many of our clinical engineers have served in the Armed Forces and many of you support patient care needs for our veterans. My heartfelt thank you for the sacrifices you and your loved ones have made to serve our country and for our safety and freedom.

As I started to write this message it struck me that we literally have 45 days left for 2021! Looking back, I recall that my first COVID-19–related meeting was in January 2020 after the US started seeing an increase in cases. Surge response efforts took me back to my days of equipment planning and budget forecasting. I still enjoy

crunching the numbers! Professionally it has been one heck of a roller coaster ride and I'm sure you all feel the same. Personally, I enjoyed working remotely – my dogs love it most of the time but some days I think they'd like the house to themselves! I developed an interest in gardening so I could grow herbs, vegetables, and tropical plants, and I became a small business owner passionately serving food in my neighborhood and for essential workers.

Across the world, we've seen several crises make a drastic impact on the social and economic determinants of healthcare. As a nation, we continue to see rising healthcare costs, with over \$1.6B spent on unexpected pharmaceutical needs in 2020-2021. At the same time there are some amazing things that we as humans must be proud of. We saw four civilian crew members travel to space which diversified the demographic for space exploration, many countries stepped up to support rural farming, endangered gorillas were adopted to support conservation efforts, and my personal favorite – Keeping up with the Kardashians was cancelled! All that said, the last 22 months has pushed us through many adversities and we have overcome them physically, emotionally, and financially. My personal request to each of you – do not ignore your mental health needs and seek support from trusted loved ones. These many months haven't been easy so it's okay to seek help!

As we get closer to 2022, I'm praying for positivity, prosperity, and peace for all of us. These few months have shown us what it means to be with our loved ones and see them happy and healthy. As a professional community, our relationships became stronger as we shared information and best practices. ACCE continues to lead the way with its educational webinar series providing quality information for our members. We thoroughly enjoyed the collective efforts to build an AEM

(Continued on page 2)

President's Message continued:

(Continued from page 1)

program, and in October and in November we will discuss the challenges with relative humidity and temperature requirements in procedural areas. The International Committee has partnered with several countries through mutual collaboration agreements to increase visibility across the clinical engineering community, Binseng Wang continues to promote clinical engineering internationally! Our task forces collaborated on Cybersecurity and Right to Repair and provided valuable feedback to the FDA. With the HTA, a few of us are working on a toolkit that will detail cybersecurity management in healthcare. Overall, as a community, we have developed white papers, articles, blogs, podcasts, webinars, and shared insights that have allowed us to learn and grow together.

We have a few in-person events lined up for 2022 – HIMSS22 in Orlando in March, MD EXPO in Atlanta in April, AAMI in San Antonio in June, and a few others organized by CHIME, AHRMM, ICE, and H-ISAC. I encourage you all to review your organization's travel policies and submit for either a virtual or in-person presentation. After many months, I really enjoyed traveling to

ACCE Membership Renewal

Thank you for being an ACCE member! It's time to renew your membership. If you have not yet renewed for 2022, renewal is due now!

To renew your 2022 membership online with PayPal, please [click here](#) or go to <https://accenet.org/Members/Pages/default.aspx?from=login>.

To renew by postal mail, please remit your renewal check to:

ACCE
19825 N Cove Road, #175
Cornelius, NC 28031

If you need an e-invoice, please contact ACCE Secretariat at secretariat@accenet.org

HIMSS and the HTM Mixer in Kansas City and seeing many of you.

In the last few weeks, a small group of members from the ACCE Board, HTCC, US and Canadian Board of Examiners met to review and revamp the clinical engineering certification. We are currently reviewing proposals from several firms so we can make the written and oral exam more flexible while meeting the current demands of the industry in numerous aspects. I am very much looking forward to sharing results of our combined efforts in the coming

ACCE News

ACCE News is the official newsletter of the American College of Clinical Engineering (ACCE).

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months.

In closing, I want to express my sincere gratitude to all of you and wish you and your loved ones a great Holiday season! Every day I count my blessings and this professional circle of support is one I'm very thankful for. Thank you all for your continued efforts to support patient care delivery and collaboration in the ACCE community!

Priya Upendra, President
American College of Clinical Engineering
president@accenet.org

**IT'S TIME TO
RENEW YOUR
MEMBERSHIP!**

The membership fees for January 1 through December 31 2022 are due now.

Renew online via Paypal, or if you need an e-invoice to make payment online via QuickBooks, or if you need to submit a PO, please email your request to:

secretariat@accenet.org

BOK Committee Report

The Body of Knowledge (BOK) Committee is looking for ACCE members to join the committee as we complete the analysis on the 2021 Body of Knowledge Survey Results, review chapters in the BOK Study Guide, and review BOK study questions. The committee meets once a month for thirty minutes and the independent work is about an hour a month. If you or someone you know is interested in joining the committee, please reach out to the BOK Committee Chair Jenn Nichols at BOKchair@accenet.org.

Jenn Nichols
BOK Committee Chair
BOKchair@accenet.org

ACCE Job Website Job Postings

For posting job opportunities, please contact Dave Smith at advertising@accenet.org

International Committee Report

The International Committee (IC) held its sixth and last 2021 bimonthly meeting on November 11, 2021. This meeting was fully devoted to a discussion with the United Nations' Office for Project Services (UNOPS) about possible future collaborations.

UNOPS was represented by Dr. Valerio Di Virgilio who was joined by 8 of his colleagues devoted to Latin America and the Caribbean. They explained that UNOPS was established by the United Nations to assist developing countries in the management of their infrastructure development projects using loans provided by international and bilateral agencies such as the World Bank. A significant portion of their work is currently focused on Latin America and in healthcare, particularly regarding the purchase of medical equipment. Most of the UNOPS team members have background and experience in biomedical engineering. One of their major concerns and goals is to ensure sustainability of medical equipment investment. They recognize that there is a severe lack of clinical engineering professionals of all levels in the Latin American public sector and is seeking assistance in training technicians and engineers for those facilities.

Since several of the IC members have had experience in managing such projects and developing training programs for CE technicians and engineers, we had a very productive exchange of experiences and ideas in those areas.

After lengthy discussion, both sides agreed that there are numerous needs that could be addressed through collaboration between ACCE and UNOPS. However, we also have to consider the nature and limitations of each organization in such collaborations. So we agreed to reconvene in the near future to explore potential collaboration mechanisms.

As mentioned in our prior reports, IC is continuing to support our collaborating associations through webinars. Since our last report, Avinash Konkani and Lou Schonder delivered a webinar entitled "Medical Equipment Planning - An Overview of the Process" to The Clinical Engineering Association of South Africa (CEASA) on Oct. 19, 2021. A similar webinar was also delivered to the Colegio Colombiano de Ingeniería Clínica (COLCINC) on Nov. 11. Another webinar on Evidence-Based Maintenance will be delivered by Binseng Wang for the Asociación Colegio de Ingeniería Biomédica de El Sal-

vador (ACIBES) on Nov. 18, 2021. And on December 2, 2021, a webinar on Surgical Fire: Complacency Burns will be presented by Scott Lucas and Nicholas Grabele to COLCINC members.

The current list of webinars being offered is available on ACCE's [website](#). ACCE members who are not IC members are welcome to consider offering webinars they believe are of potential interest to our foreign colleagues. Interested persons should contact one of the IC members (see list on <https://accenet.org/International/Pages/Default.aspx>) and provide a short description similar to what is available on the ACCE webpage. Potential presenters are reminded that such activities are strictly voluntary and does not involve any honorarium.

Binseng Wang, IC Chair
international.chair@accenet.org

From the Desk of the Advocacy Committee

2022 Awards – Call for Nominations!



The graphic features a large, shiny gold trophy on the left side against a red and orange gradient background. In the top right corner is the ACCE logo, which reads "ACCE" in large green letters with "AMERICAN COLLEGE OF CLINICAL ENGINEERING" in smaller text below it. To the right of the trophy, the text "Call for Nominations" and "2022 ACCE Advocacy Awards" is displayed in white. Below this, the "Deadline: December 12, 2021" is written. At the bottom, the text "Nomination form:" is followed by a QR code.

Please take time to nominate worthy colleagues today. Just complete this [online nomination](#) form by **Sunday, December 12, 2021**.

Awards categories:

- Lifetime Achievement Award
- Marv Shepherd Patient Safety Award
- Challenge Award
- Tom O'Dea Advocacy Award
- Professional Achievement in Management/Managerial Excellence Award
- Professional Achievement in Technology/Professional Development Award
- Antonio Hernandez International Clinical Engineering Award
- ACCE/HTF International Organization Award
- CE-HTM Champion Award

[past awards winners](#) [Awards Criteria](#)

2022 Student Paper Competition



The banner has a dark teal background. At the top left is the ACCE logo. To its right, the text "2022 Student Paper Competition is now open" is written in white. Below the logo is a box titled "Student Paper Competition" containing an illustration of a trophy. To the right of this box is another box titled "3 Divisions" with a bulleted list: "Undergraduate", "Graduate" (with sub-bullets for "Master Program" and "Doctorate Program"), and "U.S./Canada" and "International". Below the list is a box with "U.S./Canada" and "International" options. At the bottom of the banner, the text "SUBMIT YOUR ENTRY BY JANUARY 31, 2022 FOR MORE INFORMATION, VISIT" is followed by a QR code. At the very bottom, it says "Past Student Paper Competition Winners : https://accenet.org/about/Pages/StudentPaperCompetition.aspx".

The ACCE Student Paper Competition showcases the extraordinary talents of both undergraduate and graduate clinical engineering students through their development of a paper involving any area of clinical engineering practice. The award will be given to a maximum of 6 individuals currently enrolled in a CE or related college level program. One award in each division (undergraduate, graduate, doctorate) will go to a student in US/Canada and an international student.

To enter the competition:

Complete this [entry form](#) including your Division (Undergraduate, Graduate, or Doctorate)

Deadline for the 2022 paper competition is **January 31, 2022**

[Past winners](#)

(Continued on [page 5](#))

Welcome New ACCE Members

We welcome our newest members, approved by the Membership Committee, and supported by the Board of Directors:

Name	Class	Job Title	Organization	Country
Nicole Patterson	Individual	Biomedical Engineer	VISN10	OH/USA
Seth Blanchard	Institutional/Associate	Supervisor, Clinical Engineering	WakeMed Health and Hospitals	NC/USA
Ben Reed	Institutional/Associate	Biomed Engineering Tech I	WakeMed Health and Hospitals	NC/USA
Steve Comas	Institutional/Associate	Biomed Specialist	WakeMed Health and Hospitals	NC/USA
Aradhana Sridaran	Associate	Health System Integration	Analog Devices	MA/USA
Anju Chaudhari	Corporate/Individual	Interim Healthcare Technology Director	Renovo Solutions	WA/USA
Don Allen	Individual	Program Director	UHS of Delaware	NV/USA
Kordell Tan	Student	School of Engineering/Applied Sciences	University at Buffalo, The State of NY	NY/USA

(Continued from page 4)

Apply for 2022 ACCE Student Scholarship



2022 SCHOLARSHIP COMPETITION

The American College of Clinical Engineering will award one scholarship to a student studying to become a CLINICAL ENGINEER. The Scholarship of \$1,500 will be awarded at 2022 ACCE members meeting/Awards reception in June 2022, in San Antonio, TX.

Apply by February 19, 2022.

To enter the competition, go to <https://www.surveymonkey.com/r/2022-ACCE-Scholarship> or scan the QR code.




The ACCE Student Scholarship is designed to promote the profession and encourage eligible students to pursue a clinical engineering career path. It will be awarded at the annual members meeting in June.

The American College of Clinical Engineering will award one \$1,500 scholarship to a student studying to become a clinical engineer.

Requirements and Criteria:

- ACCE membership is NOT required
- Applicants *must be a current* (beginning in the fall of 2022), full-time, third-year or above undergraduate or recent graduates accepted into a related graduate program, seeking a career in clinical engineering/biomedical engineering/health systems engineering profession at an accredited college or university
- Apply by February 19, 2022, at <https://www.surveymonkey.com/r/2022-ACCE-Scholarship>

Past scholarship winners <https://accenet.org/about/Pages/StudentScholarship.aspx>

ECRI Perspectives: Calling all HTM Superheroes, Celebrating a Global Approach to Healthcare System Safety, and Reducing Disparities to COVID-19 Vaccine Access.

Have you developed a new project, process, or technique that improves the delivery of HTM, improves patient safety, or reduces costs for your facility? ECRI's Health Technology Excellence Award is looking for you. The Award is presented each year to recognize innovative and effective initiatives undertaken by member healthcare institutions to improve patient safety, reduce costs, or otherwise facilitate better strategic management of health technology. ECRI is currently accepting applications for the 2022 Award until January 31, 2022. Learn more [here](#).

ECRI and the Institute for Safe Medication Practices PSO [announced](#) Jefferson Health as the winner of their 2021 Safety Excellence Award. Like many providers, Jefferson Health has been on an acquisition spree lately, growing to 18 hospitals in the greater Philadelphia area. In a move toward improving clinical integration, Jefferson designed an integrated network of centralized safety and risk management tools and processes for all 18 facilities, starting with a

single event reporting and learning platform deployed during the pandemic. These tools and process have certainly been paying off. Jefferson increased "great catch reporting" by 88 percent, increased system-wide engagement by launching 185 tiered and escalating safety huddles, reduced central line associated blood stream infections, reduced the time to launch root cause analysis (RCA) from 9.4 days to 3 days, and reduced serious safety events. If you're part of a multi-hospital system, how are you approaching global safety and risk management?

Are you struggling to improve vaccine access to racial and ethnic minority groups within your community? Research has repeatedly confirmed that members of racial and ethnic minority groups are more likely to experience disparities in care, including having an increased risk of being uninsured or underinsured, lacking access to care, and experiencing worse health outcomes for treatable and preventable conditions. In a recent Smart



Healthcare Safety podcast, ECRI experts brought in guests from Cooper University Health Care, serving southern New Jersey and Delaware. We discussed outreach around access to the COVID-19 vaccine, how they've worked to overcome barriers, and how these efforts fit into larger programs to fight inequities. [Take a listen](#) (on our website, Spotify, and anywhere you go to download your favorite podcasts).

Take care, wash those hands, and call us if you're having trouble with your equipment or vendors!

Erin Sparnon

Senior Engineering Manager, Device Evaluation, ECRI

esparnon@ecri.org



We wish all of you a Joyous Holiday and a Happy New Year!

Jim Keller, Ted Cohen, Ismael Cordero, Suly Chi

The ACCE News Editorial and Circulation Team

AAMI Update

TRIMEDX Joins AAMI BMET Apprenticeship Program as Employer Partner

Apprenticeship combines education with up to 6,000 hours of on-the-job learning

A U.S. [national BMET \(biomedical equipment technician\) Apprenticeship Program](#) recently launched by AAMI has gained a valuable new employer partner.

[TRIMEDX](#)—an industry-leading, technology-enabled provider of clinical engineering, medical device cybersecurity, and clinical asset management solutions to healthcare systems—will be offering apprenticeship opportunities through the AAMI registered apprenticeship program (RAP) as soon as early 2022.

“At TRIMEDX, we pride ourselves on culture and training within our Associate Value Proposition,” said Kristi McDermott, president of clinical engineering. “By investing in talent development and creating partnerships to grow associates’ skills in the clinical engineering industry, this partnership provides both quality service to clients and increases associate competency and career pathways.”

AAMI’s BMET Apprenticeship Program, recognized by the U.S. Department of Labor, combines traditional education with up to 6,000 hours of on-the-job learning. Prospective BMETs are hired by program part-



ners in their area, who then provide them with training and paid work experience and cover expenses for the requisite educational courses.

With its corporate office based in Indianapolis, Indiana, TRIMEDX partners with healthcare providers to optimize the management of their clinical assets at more than 4,500 locations across the U.S. and employs nearly 1,150 biomedical equipment technicians, called BMETs.

TRIMEDX’s broad reach across the country is just one reason why Danielle McGeary, vice president of HTM at AAMI, is so thrilled to call them an employer partner for the fledgling BMET Apprenticeship Program. With the support of an industry leader like TRIMEDX, prospective BMETs will have more opportunities to get the hands-on experiences that are so necessary for this crucial field.

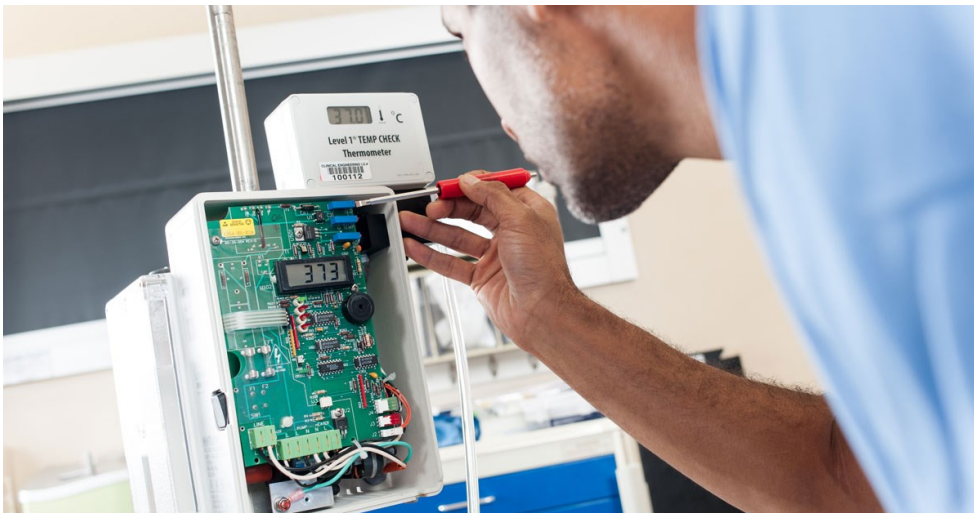
“An apprentice could be someone who’s ready for a career change, has an interest in the field but doesn’t have the means or life flexibility to go to college at this point in their life, or it could be someone just out of high school or in high school,” said McGeary. “This program is intended to bridge that gap to get them the training they need to be successful while concurrently helping to facilitate the strong HTM pipeline the field so desperately needs right now.”

Employers who take part in the program, McGeary added, benefit from having entry-level workers on their payroll they can train to their particular equipment and service specialties. “If an employer wants them to stay after the apprenticeship ends, they’ll already be up to speed—they won’t need retraining.”

According to Dawn Griffin, chief human resources and diversity officer at TRIMEDX, the company will initially bring on four apprentices during year one of the partnership.

“We are excited to participate in this program that aligns with our strategy to grow and develop talent,” says Griffin. “With client

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AAMI Update

continued

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locations in 40 states across the country, including Washington, D.C. and Cayman Islands, TRIMEDX has the ability to provide optimal opportunity as an Employer Partner. We will be able to work with our clients to meet their needs as well as review prospective apprentices to find the best fit.”

AAMI and MedCrypt Establish Cybersecurity Visionary Award

Cybersecurity represents one of the most significant—and increasingly dangerous—challenges facing the health technology community. That’s why AAMI and proactive medical device cybersecurity innovator MedCrypt are establishing a new award focused on recognizing and encouraging leaders in the emerging medical device cybersecurity space: [the AAMI & MedCrypt Cybersecurity Visionary Award](#).

“AAMI and AAMI Foundation Awards recognize those who are working to improve patient safety and push the boundaries of health technology. But until now, we haven’t offered an award specific to those working in the increasingly critical area of cybersecurity. That’s why we’re thrilled to announce the launch of the AAMI & MedCrypt Cybersecurity Visionary Award, an award program that recognizes cyber defenders who are innovating every day to keep health technology safe,” said MaryJane Thomas, senior director of membership development at AAMI. “Thank you to MedCrypt for their generous support of this award!”

The AAMI and MedCrypt Cybersecurity Visionary Award recognizes an individual who has demonstrated the vision and leadership necessary to solve some of the industry’s most critical medical device cybersecurity challenges. This individual’s contributions will have moved the industry forward, leading to improvements in our collective cybersecurity posture while continuing to ensure patient safety. Thanks to the generous support of MedCrypt, this award includes a plaque and a



\$2,000 check, to be presented at the [annual AAMI eXchange](#).

“MedCrypt and AAMI recognize the importance of cybersecurity in healthcare, but also the imperative for progress so that we, the cybersecurity professionals, can help protect the industry that protects lives. We have our work cut out for us and are dependent on cybersecurity leaders to solve the hard and complex problems we are facing.” said Axel Wirth, chief security strategist at MedCrypt. “With this award, AAMI and MedCrypt have taken an important step to advance the recognition of cybersecurity champions and, by extension, their mission to make this a more secure and therefore safer industry. But also, through this recognition, we hope to provide public visibility to the cybersecurity topic and thus inspire future leaders.”

Candidates must demonstrate:

- Leadership by identifying the larger challenges and mapping out a path on how to address them.
- Strategic thinking and leadership among stakeholders in the medical device cybersecurity risk management space, combined with the ability to execute tactically on specific challenges.
- The ability to work across stakeholders and constituencies in government,

care delivery, security research, academia, and manufacturing.

- Evidence provided through:
 - A body of work that reflects consistent and substantial contributions in reducing medical device cybersecurity risks
 - Breakthrough accomplishment(s) that substantially improve(s) critical aspects of the industry’s cybersecurity posture
 - Proposed solutions that blaze a way forward to reduce the identified risks

Nominators should include evidence of achievements that substantiate the candidate’s qualifications, as well as two letters of support.

The deadline for 2022 submissions is Friday, January 21, 2022. For more information, visit www.aami.org/awards or contact awards@aami.org.

The Time is **Now**

Clinical devices typically sit idle 58% of the time. Medigate has created Clinical Device Efficiency (CDE) to optimize device utilization, inventory, and return on investment.

Get started today:
medigate.io/cde

 **MEDIGATE**



IFMBE/CED and GCEA Update

IV ICEHTMC Virtual Congress
Thanks to all of you, we did it!



With 2,100 registrants from 128 countries, the IV ICEHTMC was a success both on-site and online through the Zoom Events platform, a unique display of the Global CE Village!

The team is currently working on uploading the event photos, recordings, and presentations to the Global Clinical Engineering Alliance (GCEA) Website.

We expect everything to be ready by December 1st, 2021.
Stay Tuned!

Go to the **GCEA** website for updates: <https://www.globalcea.org/icehtmc>



IFMBE
Clinical Engineering Division



Tom Judd, Board Chair, IFMBE Clinical Engineering Division (CED)
<https://ced.ifmbe.org/>

Yadin David, Interim President, Global Clinical Engineering Alliance (GCEA)
<https://www.globalcea.org>

2022 Clinical Engineering Hall of Fame

Nominations Are Open

The Clinical Engineering Hall of Fame is a recognition program and virtual museum established by ACCE with the purpose of celebrating the application of engineering and managerial skills to support and advance patient care through technology and honoring the individuals who made extraordinary contributions to this effort.

We encourage you to take time to nominate individuals who have made outstanding and notable contributions to the evolution and advancement of Clinical Engineering. Please be as detailed as possible and include supporting information, documents, and justifications.

See the eligibility requirements and nomination form and email your completed nomination package to

CE-HOF@accenet.org, or use this [online nomination form](#) by February 13, 2022.

Inductions to the CE Hall of Fame will be on June 6, 2022 at the ACCE Members Meeting/Awards reception in San Antonio, Texas.

James P. Keller, Jr. MS, FACCE, AAMIF

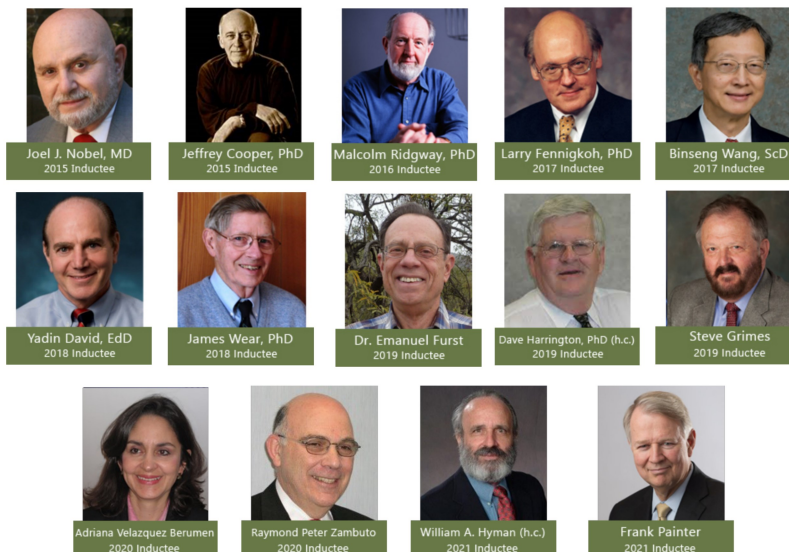
Chair, CE-HOF Nominations Review Committee

CE-HOF@accenet.org

CALL FOR NOMINATIONS! CLASS OF 2022



Clinical Engineering Hall of Fame, 2015-2021



Deadline: February 13, 2022



Nomination form: https://www.surveymonkey.com/r/nomination_2022_CE-HOF



CCE Prep: Sample Questions

In this column we are providing sample questions and information regarding preparation for the CCE exam. The sample questions are based on topics from the ACCE Body of Knowledge survey and the CCE Study Guide, version 10. Note that the instructors for the ACCE CCE Prep courses, and the writers for this column, do NOT have any affiliation with the CCE Board of Examiners and have no access to the actual exam questions. If you have specific topics you would like us cover please contact editor@accenet.org.

Facilities Systems Engineering – Part 1: Electrical Systems / Power Quality

Most clinical engineers are not involved in building systems and happily leave that responsibility to the facilities management / maintenance department staff. It is however important that clinical engineers know how these systems work and what problems they may have which can contribute to problems in the environment of care. Equipment at the bedside connects to these systems (electrical, medical gases/vacuum, ventilation systems, lighting) and patient care depends on them. Since clinical engineers are responsible for the powered devices at the bedside, it makes sense that they understand what can go wrong with the utilities that powers their equipment.

Sample Questions:

1. The Life Safety Branch of an Essential Electrical System in a hospital provides power to:

- a. Equipment in the ICU
- b. Hallway lighting
- c. The hospital ventilation system
- d. Hallway outlets

The three electrical branches in the hospital are the Life Safety Branch (the power to safely egress the building which includes egress lighting, exit signs, automatic doors, fire alarms), the Critical Branch (supplies power for task illumination, equipment and outlets for patient care), and equipment branch (HVAC equipment, med gas systems, mechanical systems). So, the answer to this question is b. hallway lighting for life safety egress.

2. GFCI are usually used in the:

- a. Operating room
- b. ICU bedside
- c. In wet locations
- d. In the laboratory

GFCI's look for surges in current to ground and trip the circuit to turn off power. These are great for wet locations to prevent electrocution should current take an alternate path to ground. In the OR or ICU, disconnecting power from the equipment could create a life-threatening situation, so GFCI's are not used there. The laboratory is not a wet location and a high-tech non-patient care, production environment, so GFCIs are not needed or advised there. So, the answer is c. in wet locations

3. The power coming out of the outlet can become unreliable when:

- a. The voltage dips
- b. The voltage waveform becomes distorted
- c. Spikes occur on the voltage because of arcing.
- d. All the above.

Power quality is very important in the hospital. Power quality problems can cause real equipment problems such as reduce the life of the equipment, cause untimely failures or cause the equipment to become intermittently flaky. Voltage dips, caused by the transmission grid, faults in connected equipment or high switching currents in-house, may cause the equipment to stop working or computers to reboot. Distorted voltage waveforms may equipment to not operate properly or efficiently. Voltage spikes typically start on the transmission grid and cause damage to medical equipment in the hospital. So, the answer is d. all the above.

In the Next Issue: Facilities Systems Engineering – Part 2: Med Gas systems & Ventilation systems

Frank Painter
frpainter@gmail.com



CALL FOR PAPERS



Global Clinical Engineering Journal

Health Technology & Innovation Improving Patient Outcomes

The open access Global Clinical Engineering Journal publishes high quality, timely, peer-reviewed manuscripts about the intersection of technology, engineering and informatics related to health, wellness, disease management, and patient-care outcomes around the world. Wider global community participation is further facilitated through this no-fee publication.

The vision of the Journal is to become the preferred international forum for facilitating the exchange, knowledge sharing, and engagement of practitioners across the globe. We will achieve that vision through a diverse range of high quality contributions of professionals from across the domains of clinical engineering, health-related technology, informatics and patient-care outcomes.

The purpose of the Journal is to collect, review, select, promote, and share original manuscripts, articles, technical papers, letters, scientific opinions, professional development tools, applications, and technical data relating to the clinical engineering and health technology fields.

The goal of the Journal is to advance and disseminate knowledge, to promote professional networking among practitioners and other stakeholders in academia, industry, government, and other decision-makers. We encourage work submissions by both young and senior researchers and practitioners. Our goal encompasses the promotion of education, training and ethical professional practice among members of this professional community.

EDITOR-IN-CHIEF: Dr Yadin David

ISDN: 2578-2562

www.globalCE.org

TOPICS

- Adverse events
- Artificial intelligence
- Artificial organs & Tissue
- Biomedical engineering
- Clinical engineering
- Disaster preparedness
- Engineering education
- Error mitigation
- Forensic engineering
- Health Informatics
- Home care
- Human factor engineering
- Implants
- Innovation and adoption
- Maintenance
- Metrology & device performance
- Professional development & credentialing
- Quality and outcomes
- Regulation science
- Risk control
- Safety
- Social impact and Ethics
- Software applications
- Systems management
- Technology assessment
- Technology integration
- Technology life cycle
- Technology management methodologies
- Telehealth and telemedicine

Journal of Clinical Engineering Subscriptions for ACCE Members

The Journal of Clinical Engineering is a compilation of articles, papers, and extensive manuscripts relevant to clinical/biomedical engineering or biomedical technology. Subject matter directly relates to the engineering or technology involved in patient care and treatment or technology in the broad field of health care delivery.

ACCE members receive a discounted subscription to the [Journal of Clinical Engineering](#) for only \$99! (Originally \$313). You must [login](#) to the ACCE website to view the code. Then visit [LWW.com](#) to enter code.



ACCE CALENDAR

<https://accenet.org/NewsEvents/Pages/Calendar.aspx>

09 December 2021, 12:00 PM-1:00 PM, ACCE Webinar Session 4: HTM/CE Value to the Healthcare Organization

12 December 2021: Last day to submit nominations for 2022 ACCE Advocacy Awards

01 January 2022: 2022 ACCE Membership renewal due

13 January 2022, 12:00 PM-1:00 PM, ACCE Webinar Session 5: Wearables

31 January, 2022, Student Paper Competition: last day to submit your paper entry. Submit your paper [here](#)

10 February 2022, 12:00 PM-12:30 PM, ACCE Webinar Session 6: The Joint Commission 2022 Updates, sponsored by Sodexo

14 –18 March 2022, HIMSS 2022, Orlando FL

3-6 June 2022, AAMI Exchange 2022, San Antonio TX

12 –17 June 2022, IUPESM World Congress 2022, Singapore

16 June 2022, 12:00 PM-1:00 PM, Session 10: Climbing the Clinical Engineering Career Ladder - Value of certifications and keys to gain management experience. Location: Online

17 April 2023-21 April 2023, HIMSS 2023. Location: McCormick Place, Chicago, IL

16 June 2023-19 June 2023 AAMI Exchange 2023. Location: Long Beach, CA

14 June 2024-17 June 2024 AAMI Exchange 2024. Location: Phoenix, AZ

ACCE

AMERICAN COLLEGE OF CLINICAL ENGINEERING

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