



ACCE News

Newsletter of the American College of Clinical Engineering

November — December 2023

Volume 33 Issue 6

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President's Message



Kim Greenwood President, ACCE

The year 2023 seems to have flown by at lightning speed now that we have left the pandemic struggle behind us. We are now all trying to keep on top of a constant barrage of new demands, many of which were put on hold during the height of COVID-19. Please remember to pace yourself to avoid burnout. The holiday season is rapidly approaching us so please set aside some time for personal relaxation and enjoying the festive season with your loved ones.

Over the last year the CCE Audit Task Force has worked to identify improvements to resolve the areas of concern identified in the commissioned 2022 CCE Audit Report. It is hoped that these efforts will improve transparency and communication amongst the ACCE Board of Directors, Healthcare Technology Certification Commission, and the two Boards of Examiners, to help better serve the Clinical Engineering community at large. A special thanks to our new President-Elect Katherine Navarro who continues to lead this task force that draws its membership from all four operating entities. This important work will continue for the foreseeable future until all identified issues in the Audit Report are dealt with.

As mentioned previously, we are moving ahead with upgrades to the ACCE website over the next few months as a priority activity. We will update you in the future on the resulting improvements to the website once this work is completed.

As part of the ACCE's commitment to continuing education of our profession, the fourth webinar in our annual series of ten educational webinars will be held on December 14th and cover *Incident Investigation Best Practices*. Please remember to pre-register for this December educational webinar and look ahead at the upcoming six planned webinars in this annual series. These webinars are free for ACCE members.

I would like to take this opportunity to remind people of the pending nomination deadline for the 2024 Advocacy Awards, which is December 10th. This is your opportunity to highlight the accomplishments of your colleagues in our profession.

Submissions for the 2024 Student Paper competition will be accepted until January 19th. Please advise your students of this contest. The details are outlined on the ACCE website if they are interested in finding out more. It is a good opportunity to get early career recognition for individuals just entering our field.

I personally would like to take this opportunity to thank all of you for your great efforts to support and improve the CE / HTM field and hope all of you enjoy some downtime and have a great start to 2024.

Kim Greenwood, President
American College of Clinical Engineering
greenwood@cheo.on.ca

CCE Exam Prep: Sample Review Questions

This column provides example questions and information regarding preparation for the CCE exam. The questions are based on topics from the ACCE Body of Knowledge survey and the CCE Study Guide, version 12. 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

1. Which technologies are available for RTLS?
 - A. Wi-Fi
 - B. RFID
 - C. Bluetooth Low Energy
 - D. Option A & B
 - E. Options A, B & C
2. In project management, what three elements make up the project management triple constraint model?
 - A. Time, Scope, and Cost
 - B. Time, Scope, and Resources
 - C. Scope, Resources, and Risk
 - D. Time, Cost, and Resources
3. Regarding service contracts, there are many terms and conditions to consider in an agreement. From the non-inclusive list below, which items should be included in an equipment service agreement?
 - A. Response time & onsite time guarantees
 - B. Software upgrades
 - C. Access to technician training
 - D. Negotiated hourly rates for non-covered hours
 - E. Options A, B, D
 - F. Options A, B, C, D

Answers on page [12](#)

From the BOK Committee Desk:

The 2023 CCE Review Webinar series, 10 weekly sessions of 1.5 hrs, ended on October 11th. About 40 members had registered for this series.

The series was offered free of charge to ACCE Members for the second year in a row. We thank the faculty who took time to prepare material and to present the sessions.

We would like to recognize and thank the many volunteering members who helped us moderate this series. Thank you, Katherine Navarro, Daisha King, Alan Lipschultz, Ishtar Al-Tahir, Jeff Hooper & Kajal Madhusudan!

We hope that all those who wrote their 2023 CCE Written examination, held November 4-18, did well!

Stay tuned:

- January 2024: 2024 BOK Survey
- April 2024: CCE Oral exam recap
- June 2024: CCE Study Guide v13.0



ACCE News

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

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UCONN Clinical Engineering Internship Program

As I drove onto the UCONN campus, it was less than 24 hours before we would kick-off the **Fall 2023 Clinical Engineering Week**. I'd been preparing for months. The interns had been asking for the agenda for weeks. We had a great week ahead including guest speakers and interns sharing their internship experiences, so it was time to get set up!

Day 1 – Fall 2023 CE Week



Day 1 was a good start to CE Week. We began the day by setting the context for the rest of the week - e.g., trust, communication, risk-taking, and life-long learning.

The afternoon workshop helped us to better understand what strategy is and why it's important, and provided a simulated environment to identify strategies we could use when we returned to our hospitals. Puzzles were our strategy simulator for the day! Yep - 350-piece puzzles. We all made some interesting observations about strategy (or the lack thereof) and teamwork. We also learned some things about our own preferences and comfort with ambiguity. If you're curious, the puzzles were all different but with the same number of pieces, shapes, and sizes.

Day 2 - Fall 2023 CE Week

Day 2 was another great day on the UCONN campus! We learned about ECRI and their products/services.

We also heard from each of the 2nd year interns who reported on their summer "vacations" that weren't really vacations. That is: the clinical engineering projects that kept them busy and the social experiences they worked in between deadlines.

That evening, we had the pleasure of attending the New England Society for Clinical Engineering (NESCE) quarterly meeting in Hartford, CT. Networking, a delicious dinner, and a Top 10 Hazards presentation by Jason Landers (ECRI) was enjoyed by all.

Day 3 - Fall 2023 CE Week

On Day 3 we returned to strategic discussions as we dug deep into the job search process.

Thank you Robin Bernstein for your Total Compensation presentation on that morning and your on-going support! The resources, advice, and personal stories are so helpful to, and appreciated by, the UCONN clinical engineering interns.

Thank you Arif Subhan for all the insights and resources you shared to help us tailor resumes to align with VA HTM job postings. We had a great conversation around this topic and recognized that many of your suggestions would make any resume and job application better.

We also had a session during which the 2nd year interns shared a broad range of insights to help the 1st year interns get the very best out of their first two semesters. Some of the in-

sights were simple but extremely helpful. Other insights were deeply insightful. It was inspiring to see and hear how these very talented students are becoming very talented young professionals.

Day 4 - Fall 2023 CE Week

Thank you, Frank R. Painter, for joining us on Day 4 and sharing your insights around professional development! Your on-going support of the program is invaluable.

Thank you Michael Golden, Andrew Strong, Shelby Johns, Hailey Michael, and Kevin Cox for bringing the UCONN CE Internship alumni perspective to our journey!

It's a wrap! We had an intense week of learning, networking, and even a bit of fun. It was time, though, for us all to return to our hospitals and classrooms.

Once again - thank you to everyone who shared my posts with your networks! That sort of visibility is so very important. Reach out to me if you're interested in learning more about the UCONN Clinical Engineering Internship program or if you would like to hire one of our talented students!

Carol Davis-Smith, MS CCE FACCE AAMIF

Program Director – [UCONN BME Clinical Engineering Internship Program](#)

Carol.Davis-Smith@uconn.edu



Welcome New ACCE Members

Name	Class	Job Title	Organization	State/Country
Alexander M. Flemming	Individual	Clinical Engineer	Childrens of Alabama	AL/USA
Jenna Root	Institutional/Individual	HTM Unit Head	Mayo Clinic	MN/USA
Ryan Motl	Institutional/Individual	HTM Section Head - Imaging	Mayo Clinic	MN/USA
Heather Weber	Institutional/Individual	Program Manager	Mayo Clinic	MN/USA
Emma Little	Institutional/Associate	Clinical Engineer	Cincinnati Children's Hospital Medical Center	OH/USA
Samantha Moriarty	Institutional/Associate	Manager, Operations and Compliance	Mass General Brigham	MA/USA
Jenny Dincher	Institutional/Associate	Director, Business Development	ISS Solutions	PA/USA

Congratulations to the following member who was upgraded to Individual Level:

Brian Julius, Supervisory Biomedical Equipment Support Specialist, Indian Health Service, SD/USA

Amy Klemm, MS, CCE
Membership Committee Chair
Amy.s.klemm@gmail.com

Clinical Engineering Salary Survey!



The American College of Clinical Engineering (ACCE) is pleased to announce the launch of a nationwide salary survey for Clinical Engineering professionals. This survey is a critical step towards achieving our mission of advancing the field of clinical engineering and ensuring fair compensation for HTM professionals. Data collected will enable benchmarking and analysis to provide valuable insights into salary trends and disparities within the field.

The anonymous 4-question survey is open to both ACCE members and non-members. The survey will be open until December 15 and results are expected to be published shortly afterward. ACCE is committed to ensuring the confidentiality and security of all survey responses.

We believe this salary survey is a significant step towards creating a more equitable and rewarding environment for healthcare technology management professionals. We urge all HTM Staff and Leaders to join us in this important effort.

Michele Manzoli
ACCE Secretary
Michele.Manzoli@cshs.org



From the Education Committee Desk:



In this edition of the ACCE News, the Education Committee would like to take some time to thank our 2023-2024 webinar panelists and moderators for Sessions 2 and 3.

Session 2 on October 12th covered “Cybersecurity Passive Monitoring Systems – Lessons Learned from an HDO Perspective”. It was presented by Keith Whitby and moderated by Eric Aring and provided insights into managing medical device cybersecurity vulnerabilities in a hospital setting. Keith outlined the Mayo HTM Medical Equipment and IoT Security Program and discussed the benefits of leveraging vulnerability management tools. Among the key discussion points was the use of Software Bill of Materials (SBOM) and how it can be leveraged to enable HTM and cybersecurity teams to respond to vulnerabilities quickly. Its limitations were also discussed. Keith ended the session with a list of practical recommendations that can help any facility get started in their medical device vulnerability management journey.

Session 3 on November 9th covered “CMMS Success Stories – Getting Actionable Reports Out of Your Service Data”. The presenters, Barbara Maguire, Arleen Thukral and Joseph Gucciardi, were well-versed on various CMMS options. Everyone agreed that data standardization is im-

portant for avoiding the pitfall of “Garbage in – Garbage out”. Among the reports that were highlighted, it was shown that accurate service histories led to actionable in-depth analysis. This encompassed everything from FTE workload balancing, all the way to service contract vs. other service delivery methods. You may review the presentation material for both sessions which are available on the [ACCE website](#).

We thank our co-sponsors for their continuous support of the ACCE community and supporting the profession. Your generous sponsorship allows us to bring the most updated education to our community at no charge, helping our members and collaborators to advance the Clinical Engineering profession. – THANK YOU!

The 2023-2024 Educational Webinar Series will continue with Session 4 on December 14, 2023, with Matt Baretich to discuss the “Incident Investigation Best Practices” and Session 5 on January 11, 2024, with Denisa Lambert to share “Tips for Refreshing your Equipment Management Plan.” ACCE Members in good standing can register for [Session 4](#) and [Session 5](#).

These sessions will be followed by 5 more sessions (10 total) that will dig deeper into issues that Clinical Engi-

neering Departments experience globally. Stay tuned as we have a great line-up of speakers this year building on the previous years’ successes.

If you have not renewed your 2023 membership yet or to jump to renew your 2024 membership, please renew it via PayPal [here](#), or contact us at secretariat@accenet.org to request an e-invoice.

If you are not an ACCE member yet, please join us today! Just complete the membership application form and submit it to secretariat@accenet.org. Or if you prefer to register as a non-member, please complete registration for this session [here](#).

Juuso Leinonen & Mike Powers
Education Committee Co-chairs
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Suly Chi
Webinar coordinator
Secretariat@accenet.org

ACCE
2023-2024 ACCE Educational Webinar Series
Incident Investigation Best Practices
Thursday, December 14, 2023
12:00 pm - 1:00 pm (EST)



Matthew F. Baretich, P.Eng., Ph.D.
President, Baretich Engineering, Inc.

Register today and join us to learn and understand how to investigate adverse incidents and participate effectively in the organization's response.



FREE for MEMBERS

2023-2024 Educational Webinars supporters



ACCE
2023-2024 ACCE Educational Webinar Series
Tips for Refreshing your Medical Equipment Management Plan
Thursday, January 11, 2024
12:00 pm - 1:00 pm (EST)



Denisa Lambert, CRMC
Vice President, Quality & Regulatory Compliance, TRIMEDX

Register today and join us to learn tips from healthcare organization to improve your MEMP strategies to help enhance patient safety.



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ACCE Membership Renewal

Thank you for being an ACCE member! It's time to renew your membership for 2024.

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

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

ACCE
2880 Bicentennial Pkwy, Ste 100#249
Henderson, NV 89044

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

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 \$378). You must [login](#) to the ACCE website to view the code. Then visit LWW.com to enter code.



ACCE Student Paper Competition


Enter the 2024 ACCE Student Paper Competition by January 19, 2024

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 the US/Canada and one will go to an international student.

The competition is open to current students, undergraduate or graduate, in a clinical/biomedical engineering or related graduate programs.


2024 STUDENT PAPER COMPETITION



Showcase your extraordinary talents through your work covering any area of clinical engineering practice!!

Division:

- **Doctorate**
 - US/Canada
 - International
- **Master**
 - US/Canada
 - International
- **Undergraduate**
 - US/Canada
 - International



PAPER COMPETITION

Criteria:

- Currently enrolled in a CE or related college level program.
- Single author or primary (1st) author of group paper

SUBMIT YOUR PAPER BY: January 19, 2024
[click here](#) to submit your paper

Awards will be presented at ACCE Awards Reception during AAMI eXchange 2024, Phoenix, AZ

Complete your entry form indicating your Division (Undergraduate, Graduate, or Doctorate), and upload a copy of your paper.

Winners will be recognized at the 2024 ACCE annual members meeting/awards reception in Phoenix, Arizona.

For more information, click [here](#).

To enter your paper to the 2024 competition, please go to <https://www.surveymonkey.com/r/2024ACCEpaperComp>

2024 Mario Castañeda Scholarship

The ACCE Student Scholarship is now the Mario Castañeda Scholarship. A tribute to ACCE past president Mario Castañeda, the scholarship furthers his legacy to promote the profession and encourage eligible students to pursue a health technology/clinical engineering/biomedical engineering career path.

The American College of Clinical Engineering will award one \$1,500 scholarship to a student studying to become a clinical engineer. An additional travel stipend of up to \$1,000 will be provided for the student's travel expenses so they can attend the annual conference and the ACCE awards reception. The scholarship will be awarded at the annual members meeting in June.

Requirements and Criteria:


- ACCE membership is NOT required
- Applicants must be a current (as of fall 2024), full-time, third-year or above undergraduate or recent

graduate accepted into a related graduate program at an accredited college or university, seeking a career in clinical engineering / biomedical engineering / health systems engineering profession .


The 2024 Mario Castañeda Scholarship will be awarded on June 15, 2024 at the ACCE awards reception in Phoenix, AZ.

For the 2024 Mario Castañeda Scholarship application, click [here](#).

2024 Mario Castañeda Scholarship



CALL FOR NOMINATIONS



Mario Castañeda Scholarship

Tribute to ACCE past president Mario Castañeda to further his legacy in promoting the profession and encourage eligible students to pursue a health technology / clinical engineering / biomedical engineering career path.

Award: \$1,500 scholarship to one student
Additional travel stipend of up to \$1,000 is provided for student's travel expenses to attend the annual conference and the ACCE awards reception.

DEADLINE: February 16, 2024

Awards will be presented at ACCE Awards Reception during AAMI eXchange 2024, Phoenix, AZ

If you can, please support the Mario Castañeda Scholarship program - with a contribution of any amount.
Click [here](#) to submit your contribution.

2024 Clinical Engineering Hall of Fame Nominations Are Open



Nominations for the Clinical Engineering Hall of Fame (CE-HOF) are open until February 11, 2024. If you want to nominate someone for this prestigious honor, check the [eligibility](#) and complete the [online Nomination Form](#).

The [Clinical Engineering Hall of Fame](#) was established by ACCE to help the wider healthcare profession and general public better understand the clinical engineering profession. It is an outward-facing virtual museum that tells the story of clinical engineering, from its beginnings in the late 1960s to the present day, by honoring the visionaries, leaders, and luminaries who have contributed to the creation, evolution, and advancement of the profession. Additionally, the CE-HOF allows students and others who are interested in exploring clinical engineering as a profession to understand and appreciate the challenges and rewards in pursuing this career.

The rules governing nomination to the CE-HOF are straightforward. Any person, alive or deceased can be nominated for induction into the CE-HOF, regardless of age, sex, race, nationality, residency, education level, years of experience, or membership within ACCE (i.e., non-ACCE members are eligible).

The essential requirement for induction into the CE-HOF is that the individual has contributed in a meaningful way to the initiation, evolution or advancement of the profession. Awards, honors, leadership positions, certifications, publications, presentations, etc. are not sufficient by themselves to warrant induction, although they may be cited as sup-

porting evidence of the nominee's contributions. A more complete description of the requirements is contained in the [Nomination Form Instructions](#).

In addition to the completed Nominations Form, at least three letters of support from well-known clinical engineering professionals are required; extensive evidence to support the nomination is expected. **Self-nomination is not acceptable.**

All nominations will be reviewed by the CE-HOF Nominations Review Committee for completeness and adherence with the essential requirements and qualifications for nomination. Up to three nominees, selected by the CE-HOF Nominations Review Committee, will be submitted for an affirmation vote by the individual, fellow, and emeritus members of ACCE. Those receiving at least 75% of the votes cast will be submitted to the ACCE Board for ratification.

The 2024 Class of Inductees will be announced at the ACCE annual assembly/awards ceremony and via official ACCE publications and website. A summary of the Inductees' contributions along with a biography, pictures, etc. will be posted on the ACCE website so that the general public, clinical engineering professionals, and aspiring students can learn about the extraordinary contributions made by these pioneers.

Arif Subhan, MS, CCE, FACCE
Chair, CE-HOF Nominations Review Committee
asubhance@gmail.com



CALL FOR NOMINATIONS!

**CLINICAL ENGINEERING
HALL OF FAME - CLASS OF 2024**

DEADLINE: FEBRUARY 11, 2024

NOMINATION FORM:



Clinical Engineering Hall of Fame, 2015-2023



Joel J. Nobel, MD
2015 Inductee



Jeffrey Cooper, PhD
2015 Inductee



Malcolm Ridgway, PhD
2016 Inductee



Larry Fennigkoh, PhD
2017 Inductee



Binseng Wang, ScD
2017 Inductee



Yadin David, EdD
2018 Inductee



James Wear, PhD
2018 Inductee



Dr. Emanuel Furst
2019 Inductee



Dave Harrington, PhD (h.c.)
2019 Inductee



Steve Grimes
2019 Inductee



Adriana Velazquez Berumen
2020 Inductee



Raymond Peter Zambuto
2020 Inductee



William A. Hyman (h.c.)
2021 Inductee



Frank Painter
2021 Inductee



Matthew F. Baretech, PhD
2022 Inductee



William Gentles, PhD
2022 Inductee



George I. Johnston (h.c.)
2023 Inductee



Marvin Shepherd (h.c.)
2023 Inductee

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AAMI Update

AAMI Publishes Best Practices Guide for HTM Employee Retention

AAMI is pleased to announce that it has taken the next step in its ongoing assessment of HTM, producing a [comprehensive report](#) on healthcare technology management (HTM) employee retention.

In 2022, [AAMI surveyed HTM](#) professionals and reported back on their concerns and various employee retention issues. This timely survey coincided with ongoing job market turbulence and the fact that a large proportion of HTM professionals are expected to age out of the workforce in the coming decades.

Then, in 2023, AAMI staff produced an in-depth report assessing the primary concerns of the HTM workforce, with a focus on employee retention. This report is based off the free-text comments from those who participated in the 2022 survey. The report identifies what issues are top of mind for HTM staff and makes clear recommendations related for employee retention. The primary issues / areas addressed include pay and benefits, communication, leadership, and advancement and training.

Employee Pay and Benefits

The survey indicated that pay and benefits are vital to HTM staff retention. Employees are not only concerned with monetary compensation, but also their ability to take advantage of other benefits like vacation days and paid time off. “Once structure, job descriptions, and promotion paths are developed, HTM leaders should work with their HR departments to ensure equitable salaries for the defined positions,” the report reads.

Communication

Communication is vital to employee retention and wellbeing. It is important for leadership and management to set expectations, maintain consistency,



Effective Employee Retention Strategies for HTM



and to listen and engage with employees in a transparent fashion. The report provides a list of ten essential characteristics that employers should consider. This includes suggestions for setting expectations and goals.

Leadership

Culture is key and management staff needs to provide employees with a voice. Issues such as quality and safety concerns, what procedures work well, ideas for improvement, and ideas related to staff recognition are outlined in detail in the report. AAMI’s report finds that establishing an employee advisory committee is one way to effectively collect this information.

Advancement and Training

A robust training regimen is a must-have for employers interested improving employee retention. As medical devices become more common and complex, HTM continues to evolve rapidly, and every organization needs continual training and a succession plan. The report finds that “HTM leaders must be creative and flexible when determining the training needed and finding where opportunities exist for their team, including AAMI, OEM courses, third-party providers, formal education, online training, or on-site apprenticeship programs.”

Managers and employers looking to learn more can download the report at [AAMI’s HTM resources page](#). Access is free for AAMI members.

If you have questions about the HTM workforce survey results, the methodology, or accessing the full report, please contact AAMI staff at htm@aami.org.

House Calls for HTM? AAMI Seeking to Survey Home Healthcare Practices

Is your local health system meeting a growing demand for home healthcare? Is your healthcare technology management (HTM) department suddenly doing house calls? AAMI wants to hear all about it and more for a unique survey of the HTM field. The survey can be found [here](#).

“It really is important that we hear from all sectors of the industry,” said Mike Busdicker, an enterprise director for Intermountain Health and Chair of AAMI’s Technology Management Council (TMC). “So, we’re looking at maintenance management systems, independent organizations, in-house programs, and manufacturers. The more information we can collect from the field, the better clarity we’ll be able to provide” for future resources and guidance.

The TMC is seeking to survey HTM professionals regarding if and how they are approaching home healthcare and the maintenance of devices intended for a patient’s home. Relevant organizations and professionals are welcome to participate in the ongoing survey.

“One of the things we’re really looking at now, as the technology continues to advance, is home healthcare. And that’s different than telehealth,” Busdicker explained.

As an example, Busdicker shared that Intermountain Health, an early adopter of home health capabilities located in Salt Lake City, UT, has an inventory of

AAMI Update

(Cont'd)

35,000 pieces of medical equipment intended for the care of a patient in their home. And while these devices don't always facilitate remote patient monitoring or remote doctor-to-patient communication - as would be seen with telehealth devices - they do remain a constant fixture in patient's treatment.

"We're now installing things like dialysis machines, O2 concentrators, etc. etc. ... so, now our frontline caregivers and HTM technicians have to go into patients' homes" to care for those patients and maintain their devices, Busdicker said. He added that the demand for at-home healthcare is only increasing as technological advances in medical devices enable new levels of at-home care.

The main question he and his peers are seeking to answer is "what is the involvement of HTM departments in home health?" Once Busdicker and his peers have a better understanding of how your average HTM department is approaching the subject, they'll better be able to identify common challenges the TMC may address by creating guidance documents and curating helpful resources for the greater HTM community.

"How many organizations are involved with home health? How many have home health facilities located throughout a state or region where equipment is going out to patients and coming back? And when a patient goes home and equipment goes with them, how involved is HTM with that process?" he asked. "We want to learn as much as we can."

AAMI Staff

Dan Visnovsky
Media Relations Manager
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IFMBE – CED Update



Navigating Ethical and Regulatory Dimensions of CE Integrated with AI

Healthcare 5.0 is a system that provides a new generation of information technologies to healthcare, such as the Internet of Things (IoT), Artificial Intelligence (AI), big data analytics, blockchain and cloud computing. In this rapidly evolving landscape, integrating artificial intelligence (AI) into primary clinical engineering functions, maintenance, and monitoring is a transformative leap promising to revolutionize patient care and healthcare systems. However, this paradigm shift comes with challenges, particularly in the ethical and regulatory domains, where clinical engineers play a key role in charting the course.

As clinical engineers guide the integration of AI technologies, they find themselves at the intersection of innovation and ethical considerations. Patient privacy, data security, and algorithmic bias are intricate challenges that demand nuanced solutions. The clinical engineering professionals are not only tasked with ensuring the integration of AI; they must also establish ethical guidelines prioritizing patient welfare and upholding the highest data protection standards. The responsible implementation of AI in healthcare requires a keen awareness of these ethical intricacies and a commitment to addressing them proactively.

Moreover, the regulatory landscape governing AI applications in healthcare is dynamic and continually evolving. Here, clinical engineers must stay proactive about the latest regulatory developments and actively contribute to shaping policies that govern these technologies. Collaboration with regulatory bodies, policymakers, and industry stakeholders is crucial to establishing a robust regulatory framework that fosters innovation while ensuring patient safety and compliance.

Transparency and solvency are essential components of the responsible use of AI in healthcare, and clinical engineering is uniquely positioned to support these principles. Demystifying AI algorithms and ensuring that healthcare professionals, patients, and other stakeholders understand these advanced systems' decision-making processes are integral to maintaining trust and facilitating informed decision-making. They play a crucial role in bridging the gap between the technical intricacies of AI and its practical implications in patient care.

Beyond compliance and transparency, clinical engineers are instrumental in advocating for inclusivity and mitigating bias in AI-driven decision-making. The potential for AI systems to perpetuate or exacerbate existing health disparities is a critical concern. Through active engagement in algorithm development and validation, the contribution that they provide to ensuring that AI algorithms are equitable across diverse patient populations is remarkable.

The future of clinical engineering in the Healthcare 5.0 era demands technical expertise and a holistic and ethical approach to AI integration. As ethical managers and regulatory navigators, clinical engineers are crucial in guiding the healthcare industry toward a future where AI enhances patient care, respects individual rights, and contributes to a more equitable healthcare landscape. Through collaborative efforts, ongoing education, and advocacy, they are poised to shape the trajectory of AI in healthcare, aligning it with the fundamental principles of beneficence, justice, and patient autonomy.

Fabiola Martinez, MS, PhD
Chair, IFMBE/CED
boardchair@ced.ifmbe.org

Happy Global Clinical Engineering Day 2023



Women in Technology Panel
Thursday, October 26, 2023; 12 pm - 1:30 pm (EDT)

Panelists

 <p>Carol Davis-Smith President Carol Davis-Smith & Associates, LLC</p>	 <p>Mayra Becerra Biomedical Equipment Technician Memorial Health care System</p>	 <p>Katrina Jacobs Sr. Clinical Systems Engineer Kaiser Permanente</p>	 <p>Krystal Santiago VP, Global Quality and Regulatory Planet Innovation</p>
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In celebration of the 2023 Global Clinical Engineering Day, the ACCE Advocacy and Education Committees, orchestrated a groundbreaking panel discussion webinar on October 26, 2023. This year's focus was on "Women in Healthcare Technology Management," acknowledging the invaluable contributions of women in the Clinical Engineering and Healthcare Technology Management (HTM) community. The four distinguished speakers, Carol Davis-Smith, Mayra Becerra, Katrina Jacobs, and Krystal Santiago shared their insights, each offering a unique perspective from their experiences in the field.

The panelists delved into the evolution of women's representation in technology within the healthcare sector over the years. Despite initially feeling like pioneers, they observed a positive shift with an increasing number of women entering the domain. However, a persistent challenge lingers - the heavily male-dominated leadership landscape within the field. This realization underscored the ongoing need for efforts to promote gender diversity and equality in leadership roles.

Role models played a crucial role in shaping the panelists' professional journeys. The speakers emphasized learning both from positive aspects and avoiding undesirable leadership styles.

Mentorship, they argued, should be a proactive endeavor, urging mentees not to wait for formal assignments but to actively seek opportunities. Overcoming internal barriers, such as self-doubt, was highlighted as integral to breaking through professional hurdles.

The discussion shifted to barriers and biases, unveiling prevalent challenges such as questioning women's ability to lead in technical professions and the lack of visibility of women's contributions. The panelists advocated for active promotion of the field, assertive advocacy for leadership roles, and robust support for female colleagues.

Networking emerged as a transformative force in career advancement within the HTM community. The panelists encouraged active involvement in relevant societies, volunteering, and presenting at conferences. Beyond technical skills, the importance of cultivating soft skills for effective communication and articulation was underscored. Associations/Conferences like ACCE, AAMI, MD Expo, and HIMSS were highlighted for their significance in expanding networks and gaining insights through their events.

Considering the future, the panelists expressed optimism, citing encouraging statistics on female attendance in HTM-related programs. Proactive

measures, such as participating in school career fairs promoting the engineering field, were suggested to inspire high school girls to pursue careers in this dynamic field.

In conclusion, the panelists emphasized the holistic approach required for women to thrive in Clinical Engineering and HTM. While acknowledging significant growth, they highlighted the persistent need for increased visibility and also encouraged continual investment in both technical and soft skills. The recommendation to leverage modern techniques and strategic approaches reflected the need for women to actively build, advocate for, and expand their communities to foster a more successful representation within the HTM domain.

If you missed this live session, you may catch up with the recording from our YouTube Channel: https://youtu.be/A_EVU0NpdQ4

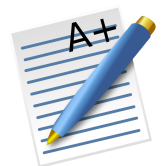
Thank you to our organizing team, Angelina Chiaracane, Maryam Samiee, Priyanka Shah, and Jennifer Ott for organizing this panel.

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Answers to CCE Exam Prep: Sample Review Questions

Answers to Questions from Page 2

1. E
2. A
3. F



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Hello From ECRI!



Hello from ECRI, where we're closing out this year by finalizing our Top Ten Technology Hazards, preparing for the start of a busy holiday/ "finish-all-the-evaluations-season", and weighing the merits of re-launching the old white elephant gift swap/ugly sweater party. In the meantime, we're excited about:

1. Making an impact in the safe use of medical equipment! ECRI ultrasound expert Dan Merton saw a February 2023 report in the peer-reviewed *Journal of Diagnostic Medical Sonography* suggesting the use of a homemade aloe vera-based mixture as a substitute for commercial ultrasound coupling gel, and knew he needed to speak up. While the standard cool blue goo isn't anyone's favorite lotion, Dan knew that the use of unapproved coupling agents can damage transducers and void their warranties, a definite financial headache as well as a potential safety issue if imaging is indicated but no working transducer is available. His [letter to the editor](#) steering readers away from a DIY approach to coupling gel was published in August.
2. It took a bit longer, but we've also made an impact in the safety of home infant oximetry monitors! Back in 2018, ECRI partnered with the Children's Hospital of Philadelphia to study the effectiveness of pulse-oximetry-based baby monitors marketed to consumers, and we had [a lot of concerns](#). We were delighted to hear last week that Owlet took the time and resources to validate their performance against medical-grade oximeters, culminating in [FDA clearance](#) of their home-based device.
3. Bringing our safety message to our friends to the North! ECRI is delighted to be hosting a track at the 46th Canadian Medical and Biological Engineering Confer-

ence (CMBEC46) in Toronto next May, in which we'll dive into the many ways that new technologies are enabling and adding challenges to the delivery of health for all populations.

4. ECRI Guidelines Trust relaunch! Our new streamlined public-facing website for our ECRI Guidelines Trust® (EGT) is now live at <http://guidelines.ecri.org>. Updated features include removal of user registration to access the site, a free repository of current guidelines developed by more than 300 nationally and internationally recognized medical societies and healthcare organizations, new search filters, and more!
5. ECRI affiliate ISMP is in the News! [Sage Growth Partners](#), a leading healthcare advisory firm, released a [cross-sector report](#) on patient safety challenges featuring ISMP President Rita Jew's discussion of the current state of patient safety, why hospitals and health systems should utilize a total system approach and the need to leverage technology together with human factors engineering principles to improve medication safety. While discussing opportunities for improvement, she noted that "a total system focus helps identify the elements that influence safety outcomes and their inter-relationship. This helps design processes and best practices that can produce better and more sustainable outcomes."

If you're ever in the neighborhood, we'd love to show you around our gorgeous laboratory space. But, in the meantime, wash your hands, keep on excelling, and, as always, tell us what you're seeing.

Erin Sparnon
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Help Wanted: ACCE News Co-Editor

ACCE News is published six times a year (every other month) and each edition is 10-20 pages long.

The ACCE News co-editor is responsible for editing 3 of these newsletters each year and those duties include the following:

- Notifying regular article contributors of the upcoming edition's submission deadlines
- Editing submitted articles
- Editing photos and graphics
- Editing newsletter pages so that the articles fit on the page
- Writing headlines and sub-headings
- Submitting draft Newsletter for subsequent review and edit suggestions by the ACCE Secretariat, ACCE President, ACCE Co-editor, and ACCE Managing Editor

- Completing final editing for submission for publishing
- The co-editor may also on occasion write articles

Currently, the software used for this process is Microsoft Publisher.

It takes approximately 10-20 hours per issue to complete the above editor tasks.

If interested, please contact editor@accenet.org



WE WANT YOU

World Health Organization (WHO) Collaborating Center for Health Technology Management Update

The WHO Collaborating Center for HTM at the University of Vermont (UVM) Technical Services Partnership (TSP) continues to work on the WHO COVID-19 Respiratory Equipment Training videos project. The initiative is led by ACCE member Adriana Velazquez, Team Lead Medical Devices and In Vitro Diagnostics, at WHO. ACCE members Bill Gentles and Tobey Clark have been coordinators of the video series involving over 100 contributors from 20+ countries. As of November 20th, 17,105 global learners from 187 countries including 22 Low Income and 46 Lower-middle Income countries have enrolled in the English version of the course on OpenWHO. In addition, the videos are available on the WHO Training for Medical Devices site and the WHO YouTube channel. The courses have also been translated to French - COVID-19 Module de formation sur les équipements respiratoires. Lastly, a course on Medical Equipment Electrical Safety Testing was developed and currently has 2,960 participants on OpenWHO.

Michael Lane, Co-director of the Collaborating Center is working with an international team to revise the publication Computerized Maintenance Management Systems which is part of the WHO Medical Devices Technical Series. Michael is responsible for several chapters of this important publication.



The 12-week course on Healthcare Technology Planning & Management developed by Tobey Clark at the University of Vermont is being offered for the 5th time on the PAHO Virtual Campus for Public Health. The course has been translated to Spanish, Portuguese, and French and is currently being held in French for participants from Algeria through a grant from the United Nations Development Program. French instructors include ACCE members Rosana Rivas, Evenel Osias, and Gabriela Jiménez Moyao.

At the end of October, Alfonso Rosales, PAHO (Pan American Health Organization) Technical Officer, and Tobey Clark representing the PAHO Innovation in Medicines and Technology group traveled to Suriname to conduct a Health Technology Assessment & Management Workshop and site visits with the participation of the Suriname's Ministry of Health and other important stakeholders. PAHO team members were pleased that Suriname will pursue a national policy on HTA and HTM and agreed to have additional training from PAHO on these areas.

The RedETSA and Network of Evidence-Informed Policies and Practice Guides joint meeting on HTA was held in Kingston, Jamaica over the period November 14-16. Twenty-one countries are members of RedETSA with the recommendations made by these HTA organizations influencing technology decisions by their national health systems. The Collaborating Center presented on HTA for medical devices and the HTA/HTM Initiatives in the Caribbean. A positive note was made in the opening welcome speech by Dr. Christopher Tufton, Jamaican Minister of Health (MoH), thanking the Collaborating Center for their work on the development of an HTM policy for the MoH.

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The University of Vermont



Season's Greeting

Have a wonderful Holiday Season and Happy 2024!




ACCE CALENDAR

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

10 Dec 2023	Last day to submit your nominations for 2024 ACCE Advocacy Awards Click here to submit your nomination
14 Dec 2023 12:00 - 1:00 PM	ACCE 2023-2024 Educational Webinar Series Session#4: Incident Investigation Best Practices Faculty: Matthew Baretich
15 Dec 2023	Last day to submit paper for the 46th CMBEC - CESO24 Location: Doubletree by Hilton, Toronto, ON Click here to submit your paper online
11 Jan 2024 12:00 - 1:00 PM	ACCE 2023-2024 Educational Webinar Series Session#5: Tips for Refreshing your Medical Equipment Management Plan Faculty: Danisa Lambert
18 - 20 Jan 2024	2024 CMIA Connect Conference Anaheim California Medical Instrumentation Association 2024 Educational Conference and Exhibit Click here for more information
19 Jan 2024	Last day to enter ACCE Student Paper Competition Click here for the entry form
08 - 11 Feb 2024	Florida Biomedical Society 2024 Symposium Click here for more information
08 Feb 2024 12:00 - 1:00 PM	ACCE 2023-2024 Educational Webinar Series Session#6: TJC Updates: 2024 Faculty: Herman McKenzie/TJC
11 - 15 Mar 2023	HIMSS24 - Orlando Click here for more information.

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