



# ACCE News

Newsletter of the American College of Clinical Engineering

May-June 2015

Volume 25 Issue 3

Celebrating 25 years



1990-2015

See page 10 for ACCE "Founder's" anniversary commentary.

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## President's Message



By the time you read this newsletter I will be nearing the end of my first term as ACCE President. ACCE officer elections will be held in July, and I am running (unopposed) for a second term, so I plan to continue as President for one more term.

This is a bit 'after the fact', but I'll recap the AAMI meeting and our activities, then discuss current activities and a glimpse to the next year.

As always, I found AAMI rewarding and a bit overwhelming. I was fortunate enough to attend the 'Manny Meeting' on Friday. There was a lot of good dialogue on a number of topics that are on the profession's mind, such as managing vendor expenses and Risk Management, plus future looking topics on Systems Engineering in healthcare and preparing for interoperable devices. One lively part of the last topic was a debate over the

technician skill set needed to manage interoperability and the fact that many existing technician's inherent abilities and interests don't line up with that model. This change will present a huge challenge going forward.

The ACCE Symposium was VERY well attended; over 300 people participated. Even though the program was one hour shorter, the feedback from participants was extremely positive. Many let me know it was one of the best yet. The Education Committee deserves full credit for that success - they worked VERY hard at setting up the Symposium and did a great job.

I'll confess, I was a bit cautious at AAMI's reworking of the conference. There were a few challenges, but it worked out. I particularly enjoyed the more casual Awards Reception on Saturday night. It was a pretty fun event that allowed us to mingle with others much more.

The new Interoperability Showcase (which ACCE co-sponsors) in the Exhibit Hall was a huge expansion over past 'desktop' demonstrations. It showed devices passing information to where it would help the clinician and patient best. Plus the theater offered an opportunity to discuss why interoperability matters and what we can all do to move it forward.

Finally, ACCE's 25th Anniversary reception was a big hit. I admit being concerned at the sheer number of slides we had to go through - I didn't want to bore the attendees. There was excellent conversation, enhanced by the excellent food and drink (and birthday cake!). I want to thank all our sponsors. Through their generous support, the activities were fully funded. I especially want to thank Suly - who's tireless efforts kept me (and likely others) on track, enabling the evening's success. Finally, I want to congratulate the Japan Association for Clinical Engineers. Both groups started within a month of each other. They had representatives at the reception and presented ACCE with a wonderful gift, a mounted pin of their mascot (picture included). The mascot is very symbolic. It is a lamb (year of the sheep), with a heart displayed (representing healthcare) that contains their initials and a cog (representing engineering), finished with (here's where my memory gets hazy) headphones indicating electronics (feel free to correct me). This gift belongs to ACCE, I'll bring it with me to HIMSS and AAMI, then pass it on to the next President.

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# Healthcare Technology Foundation News



## **HTF Annual Meeting**

HTF held its annual meeting following AAMI. We elected some new board officers! Paul Coss, RN, will assume the role as President. Tobey Clark will move into the Past President role. Barrett Franklin will assume the role as Vice President. Ted Cohen and Tony Easty are rolling off the board. We thank them for their participation.

## **AAMI/HTF Alarms Management Workshop**

More than 120 attended the Alarms Management Workshop co-lead by Marilyn Flack, Executive Director AAMI/HTSI, and Tobey Clark, HTF (filling in for Alarms Task Force Leader, Izabella Gieras) at the AAMI annual meeting. Following an opening presentation titled **A Decade of Action** outlining work by HTF in this arena, speakers from three hospitals and a middleware company showed the value of data in improving alarm management. One talk by a nursing leader at Naples Hospital showed the value of direct nursing interaction with the alarms systems based on patient condition resulting in greatly reduced alarm burden. A lively discussion with the five presenters over the last hour of the four hour workshop showed how far we have come in reducing alarm fatigue, but also the additional work needed to comply with the 2016 portion of the Joint Commission NPSG – improve the safety of clinical alarm systems.

## **HTF Session at World Congress on Medical Physics & Biomedical Engineering**

Yadin David led a Continuing Education session at the WC 2015 providing the international BME community with the challenges facing the critical care environment in the US related to clinical alarms. Marge Funk woke up the crowd with her presentation by starting off attempting to talk about alarm hazards with constant beeping alarms superimposed in the background.

After a few minutes of this torture, she stopped the beeping and provided an outstanding presentation on her work at Yale University as a nursing professor and as a leader of both HTF and AAMI alarm hazard improvement efforts. Tobey Clark followed with a short presentation on HTF's work and future plans for improvement, the Joint Commission NPSG and how it is being achieved at University of Vermont Medical Center. Although the twenty odd attendees were not from Joint Commission hospitals, they expressed concern with the hazard and shared steps that they have taken to assess and reduce the problem of alarm fatigue.

## **The First International Clinical Engineering and Health Technology Management Congress (ICEHTMC)**

The First International ICEHTMC is planned for October 20-21, 2015 in Hangzhou, China to identify and address common global healthcare technology issues that are important for both national and global stakeholders. Key health technology (HT) leaders in Peoples Republic of China (PRC) along with an international group of HTM/CE leaders including co-chair Yadin David are developing an impacting program sponsored by Chinese Society of Biomedical Engineering Clinical Engineering Branch, IFMBE/Clinical Engineering Division, ACCE, HTF, and a number of other international organizations. Abstracts and original articles submission deadlines in the six theme areas are due July 15 and August 15 respectively. The congress website is <http://www.icehtmc.com/html/en/index.html>

## **Other Board Member News**

Congratulations to Izabella Gieras on

receiving the AAMI 2015 HTM Leadership Award. She was also selected to chair AAMI's Biomedical Instrumentation and Technology (BI&T) Editorial Board.

## **AAMI 2015 Managing Risks of Integrated Systems and Networks in Healthcare Environments**

Immediately following the 2011 execution

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## **ACCE News**

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

**ACCE News** is a benefit of ACCE membership; nonmembers may subscribe for \$75.

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## **Journal of Clinical Engineering Subscriptions for ACCE Members**

ACCE members receive a discounted subscription to the [Journal of Clinical Engineering](#) for only \$99! (Originally \$222). You must [login](#) to the ACCE website to view the code. Then visit [LWW.com](http://LWW.com) to enter code.

# President's Message continued

*(Continued from page 1)*

To the future: I want to thank Jacob Johnson for all his hard work leading the Education Committee. Our committee became active enough that it decided to have co-chairs. Please join me in welcoming Chris Falkner and Jennifer DeFrancesco as the new Education Committee co-chairs. They're bringing a lot of enthusiasm to the group and will do a great job.

ACCE has grown a lot over the years. The Board thought it was a good time to review our processes in preparation for the next 25 years. To that end Ismael is chairing a By-Law review group. We have to follow our by-laws, and mostly we do, but not always. In some cases we forgot, in others, the by-laws just didn't fit with what we were trying to do. I encourage all members to look at the By-Laws (<http://accenet.org/about/Pages/Bylaws.aspx>), especially if you're on a committee or workgroup. Look closely and let us know what's done well and what needs updating. Also, as we look to formalize our relationship with the World Health Organization, ACCE realized we need to have an independent financial audit. As we discussed this, we realized an audit was a good idea for ACCE in general. It's proper stewardship of the funds you trust us with. I'm currently discussing the process and terms of that audit with a firm specializing in non-profit audits. We'll keep you all updated.

ACCE has struggled to keep the Clinical Engineering Body of Knowledge (BOK) up to date. The BOK is necessary to document what our members are doing in their jobs. It's absolutely needed to ensure the CCE exams remain current and relevant to the field. Arif Subhan, ACCE Vice-President has volunteered to take on this round of updating the BOK. Just a week into it (at this writing) he's moving forward. If you're interested in helping, please let Arif know at [vice-president@ACCEnet.org](mailto:vice-president@ACCEnet.org).

One of my concerns as I assumed the mantle of ACCE President was my age, and the age of others leading ACCE. I saw a fair amount of grey hair out there - and that wasn't a good thing. Over the past year, we've added a fair number of new members and many of them are of a much younger generation. A number of younger members are stepping up to serve ACCE; I'm very

proud of you and grateful for your help. For those that think it may be too much to take on - I understand. One more thing in an already hectic schedule... Many of the committees meet once a month for an hour, with a little work outside of that. The benefits of volunteering to help are far greater than I've ever imagined. I hope you'll consider it.

Finally - I'm amazed at our international membership. We have a LOT of international members representing

countries from five continents. Just think on that for a moment. During our meeting at AAMI, I mentioned that maybe we should call ourselves the international college. Thinking on it - no. We serve well as an incubator for our international members, providing an organization that helps them get together and eventually, form their own societies. That's a pretty good legacy.

Paul Sherman

[President@ACCEnet.org](mailto:President@ACCEnet.org)



ACCE President Paul Sherman receives a congratulatory gift from the Japan Association for Clinical Engineers, Vice Chairman Takeshi Ifuku.



Close-up of the 25th anniversary present from the Japan Association for Clinical Engineers to ACCE



# ACEW Report

## WHO-PAHO/IFMBE CED/ACCE HTM Seminar assisted by CMBES / CESO / AAMI

### Attendees:

**Abazi, Nexhdet:** Kosovo: IPKO Telecomm. Engineer  
**Abir, Ahmed Raihan:** Bangladesh: University of Dhaka BME  
**Alfons, Marina:** Australia Egypt: WHO BME Intern  
**Anyango, Philip Amoko** Kenya: MoH Kenya Hospital CE  
**Arora, Prabhat** India: MoH India Consultant  
**Cardenas Alanis, Claudia** Mexico: Escala Biomedica Professor  
**Castro Medina, Jorge** Cuba: MoH Cuba Hospital CE  
**Chery, Jean** Haiti: Medical Device Consultant  
**Contó, Murilo** Brazil: MoH Brazil HT Manager  
**de Alba, Félix León** Mexico: Univ. Iberoamericana Prof.  
**Edward, Kataaha** Uganda: MoH Uganda Hospital CE  
**Esan, Bukola** Nigeria: MoH Nigeria Dir. HT Unit  
**Garcia Ibarra Andrea Rocio** Colombia: MoH Colombia Dir. HT Unit  
**Giles, German** Argentina: Private Hospital CE Director  
**Jie, Gillian** Suriname: MoH Suriname Hosp. CE Dir  
**Katz, Zeev** Brazil: Private CE Company COO  
**Lahai, Momoh** Sierra Leone/US: San Jose City College Professor  
**Lencina, Marcelo H** Argentina: MoH Argentina HT Coordinator  
**Mideksa, Mulugeta** Ethiopia: MoH Ethiopia BME Advisor  
**Moreno, Maria Eugenia** Mexico: MoH Mexico Hosp. Coord.  
**Mulepo, Sitra** Uganda: MoH Uganda Senior BME  
**Penjore, Tashi** Bhutan: MoH Bhutan Director HT Unit  
**Rabbani, Dr. K Siddique-e** Bangladesh: Univ. of Dhaka BME Professor  
**Rivas, Rossana** Peru: University (PUCP) Professor  
**Rojas Morales, J Marcela** Colombia: MoH Colombia Lab CE Director  
**Sharma, Dr. Jitendar K.** India: MoH India WHO HT Ctr. Dir.  
**Smith, Megan** Canada: WHO BME Intern  
**Steinkellner, Rene** US NGO: BME Leader  
**Tlhomelang, Bonang S.** Botswana: MoH Botswana Reg. HT Dir.  
**Valliere, Monette** Haiti: : National Hospital CE Director  
**Wanda, Sam** SB Uganda: MoH Uganda Director HT Unit  
**Zequera, Dr. Martha** Colombia: Pontificia Univ. Javeriana Prof.

You see from the endless title of this ACEW that it was very collaborative. In fact, it was, spanning 10 days in Denver at AAMI and Toronto at the IUPESM (BME/CE) World Congress <http://wc2015.org/>. There were 32 Participants from 20 countries and 5 continents (see Tables below). If you are new to ACEWs, check out ACCE's International Committee on the website - <http://accenet.org/International/Pages/Default.aspx>, chaired by Antonio Hernandez. One key global partner was IFMBE CE Division, see <http://ifmbe.org/organisation-structure/divisions/clinical-engineering-division/> and <http://cedglobal.org/>.

ACCE in partnership with others have conducted over 50 ACEWs since 1991, training health leaders from now over 80 developing countries. This June 4-12 event had a three-fold focus: (1) US CE best practices (US CCE review course); (2) global CE best practices (from IUPESM sessions); and (3) country/regional HTM best practices (presented by Faculty and Participants). The Faculty was led by Adriana Velazquez - [www.who.int/medical\\_devices/en/](http://www.who.int/medical_devices/en/), Bill Gentles, Antonio Hernandez, Mario Castaneda, and Tom Judd (Coordinator), with assistance of Ms. Ledina Picari, Health Technology Unit leader, Ministry of Health, Albania.

This ACEW added representatives from several diverse places that had not joined before, like Albania, Botswana, Bhutan, Egypt, Haiti, Kosovo, Nigeria, Suriname, and Sierra Leone. See the Denver group picture below. Key ACEW discussions involved topics ranging from Health Technology (HT) organization/structure at national level, medical device service delivery models, HT Regulation, HT Assessment, Risk/Safety,

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### ACEW Faculty/Advisors

Baretich, Dr. Matt: US  
Calil, Dr. Saide: Brazil  
Castaneda, Mario: US  
Clark, Tobey: US  
Cohen, Ted: US  
Cordero, Ismael: US  
David, Dr. Yadin: US  
Gentles, Dr. Bill: Canada  
Easty, Dr. Tony: Canada  
Hernandez, Antonio: US  
Judd, Tom: US  
Painter, Frank: US  
Picari, Ledina Albania,: East Europe  
Quintero, Dr. Vladimir: Colombia  
Silva, Dr. Ricardo: Venezuela  
Sloane, Dr. Elliot: US  
Velazquez, Adriana: Mexico  
Wang, Dr. Binseng: US  
Wear, Dr. James: US



Denver ACEW faculty and attendees wearing their ACCE 25th anniversary commemorative T-shirts.

# International Report: Denver and Toronto

Reaching twenty-five years is a very important milestone in any professional organization. Twenty-five years ago, a group of visionaries decided to share their knowledge and expertise in Clinical Engineering and Health Technology Management with their colleagues around the world. As a result of their commitment and hard work, today we are proud to have a recognized world-class organization with 20% of its membership comprised from many different countries of the world. I wish to recognize those visionaries that have contributed to a better world through significant contributions to patient safety and efficient management of technology.

To celebrate the 25<sup>th</sup> anniversary, among the many activities that bring ACCE to the world scenario, I want to highlight the activities during the first two weeks of June.

First is the “Health Technology Management Seminar” from the series of Advanced Clinical Engineering Workshops (ACEW) described in the article by

Tom Judd on [Page 4](#). This seminar gave the opportunity to 32 colleagues from 20 countries to share their country experience, attend several of the lectures on the conferences, and attend the regular seminar program. The great success of this multi-country activity shows the strong organizational and logistic skills developed by ACCE’s voluntary members. A big applause goes out to Tom Judd, the leader of the seminar, and to Bill Gentles for organizing the Canadian part of the seminar. As a tradition, all participants, faculty members, and collaborators received the engraved, commemorative “pen” as a token and reminder of the commitment to the ACCE Mission and Vision. I want to take the time express my thanks to all of the people that contributed to make the seminar a success.

In Denver, we attended the 31<sup>st</sup> Annual Conference on Clinical Engineering and Cost Effectiveness, also known as Manny’s Meeting in honor of Manny Furst. As always, cutting edge information on technology was presented and discussed. The ACCE Symposium: Privacy and Security Risk Management for Clinical Engineers was

very well attended. At the ACCE 25th Annual Membership Meeting/Awards Reception we had the opportunity to socialize with our colleges and cheer on the ones that were receiving awards.

In Toronto, we attended the IUPESM2015 World Congress, with Mario Castaneda and Antonio Hernandez as ACCE Liaison Officers with IFMBE participating in the Organizational Meetings. ACCE has two votes at the IFMBE General Assembly. In that meeting, Singapore was selected as the venue for the 2021 World Congress, Sankar Krisnan was elected as IFMBE President, and our friend and colleague Tom Judd was elected as an IFMBE/CED Member. During the Gala Dinner, ACCE awards were presented to Caridad “Cari” Borrás, Binseng Wang, the Simon Bolivar University/Vladimir Quintero, and Ariana Velazquez.

For the Continuing Educational Program, as requested by the Educational Committee, ACCE prepared and delivered an educational track in Spanish on the “Interoperability in Health Technology.” The sessions were

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Toronto ACEW participants visiting the Princess Margaret Cancer Center in Toronto (see related story on page 4)



# From the Editor's Desk: AAMI 2015 Privacy, Security, Confidentiality and more

I really enjoyed Denver and the AAMI Annual Conference this year. The conference kicked off with the ACCE Symposium entitled "Privacy and Security Risk Management for Clinical Engineers". A large part of the three day conference was spent on various points of view on these increasingly important security issues. The FDA and Good Manufacturing Practices (GMP) mandate that medical devices be rigorously tested to make sure they do what they are supposed to do under normal, and sometimes unusual, conditions. However, how many computer-based medical devices are fuzz tested? Fuzz testing is one test technique that injects "random" data into a medical device to see what happens under error conditions and is used as a way to measure how well a device behaves when highly unusual inputs (e.g. malware) is present. See <http://www.mdiss.org/Content/documents/codonomicon-mdiss-fuzz-framework-16.pdf> for more information on fuzz testing of medical devices

How does all of this Security, Integrity, Confidentiality discussion directly affect those of us working every day in CE? Here are a few examples from my own personal and work experiences just in the past couple of months:

**Data integrity:** Major medical device vendors and major EMR vendors still use bed labels (e.g. ICU25) in order to associate a patient to that patient's physiological monitor rather than "registering" the patient to the monitor and confirming the patient name and medical record number in the monitor's HL-7 output, with that patient's medical record in the EMR. Occasionally, when a patient is moved to a different bed or a different department, and the appropriate change is not made in the EMR, physiological monitor data can flow into the wrong patient record. Fortunately, if "auto verification" is off, there is still one more level of human eyes, the nurse validation step, controlling whether the erroneous data flows into the medical record. Every one of these patient association problems is a "near miss" incident. Are they all being captured? Probably not. Hopefully, in the

near future, the IHE patient association profile will be completed and implemented by the major physiological monitor and EMR vendors and most of this problem will go away.

A personally embarrassing personal computer data integrity error occurred to me recently. I handle my family's bills that are managed on the computer and my wife handles those that come in via "snail mail". Recently, we were discussing our internet services and telephone phone bill (we still have a landline) since we received a notice that we had not paid the previous month's bill with a threatening letter that our service was going to be canceled. I checked and I paid it via my electronic banking. Researching further a couple of days later, and spending more than an hour on multiple calls with the phone company and my bank, I discovered that when this "auto-pay" was recently set up with the bank, there was an error in the phone company account number (one digit was off my one number). In the initial discussions with the bank and the phone company, the account number verification had been done with the "last 4 digits" of the account number. These last four digits were fine. It was one of the first 6 digits that was a problem. It took another 2 hours on the phone to get the phone company to figure out how to credit my account (and debit some unknown person's account that was receiving my payment). As we clinical engineers know, these computer systems work well when they work well, but when they go awry, often due to human error like mine, it can be very difficult to find the problem and correct it.

I digressed, so back to healthcare IT security issues. While I was at AAMI in Denver, a malware attachment was sent to over 10,000 employees where I work. This malware looked like it came from other staff (someone had obviously gotten into the internal e-mail address directory). Over 800 staff opened an attachment from this malware, ultimately resulting in their computers being removed from the network and, over a week of so period of time, each infected computer had to be completely re-imaged by IT. What a mess! I'm glad I did not open the attachment and only two

computers in my department had to be re-imaged.

Fortunately in the real world, so far, there have been very few reported negative patient impacts from problems with security of medical devices, but we must remain vigilant. The security experts' lab tests show that medical devices are extremely vulnerable to malware since they are often not designed with security in mind, not patched in a timely manner and typically have long development times and hopefully, continue to have long life spans.

Manufacturers and hospitals are getting better, particularly with newer products and newer networks. However, more efforts are needed in the difficult areas of legacy systems security. For example, multiple levels of security must be in place from isolated networks (virtual or physical), firewalls, intrusion protections systems, more timely patching, as well as improved product design that takes security into account from the beginning. Security can no longer be treated as a distraction or after-thought and must be considered a core design principal along with patient safety and the end-user interface. For clinical engineers, particularly younger ones, medical device IT security and interoperability would seem to be an ideal career path with an interesting and lucrative future.

Other topics of interest at AAMI that I attended and/or I participated in included the Interoperability Showcase at the exhibit hall, George Mills' Joint Commission update, an all-day course on IEC 80001 (Network Risk Assessment) and HTM benchmarking.

The Interoperability Showcase demonstrated several of the IHE PCD profiles including a syringe pump connected to an EMR automatically receiving medication orders and sending out medication delivery messages (e.g. infusion rate, amount delivered) using IHE profiles. They also showed location services (MEM-LS) whereby RFID/RTLS information is sent via IHE-compliant HL-7 messages. IHE is progressing, albeit somewhat slowly on the commercialization side. Most of us like to purchase "best of breed" products, and the way to make these prod-

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# Editor's Desk

*(Continued from page 6)*

ucts from multiple manufacturer's communicate with each other without (too much) customization is to use IHE. Therefore, we all need to include IHE requirements in our RFPs, where appropriate, and show the manufacturers that IHE is important to us, their customers.

For George Mills' Joint Commission update, first the good news: For the past 4 years Medical Equipment has not been in the "top 8 cited standards" from Joint Commission surveys. Now the bad news: There continues to be a large amount of confusion and controversy for several recently changed CMS and Joint Commission requirements. Here are a few examples:

- RPTs, aka plug strips are banned or require a "waiver". Compliance with NFPA-99-2012 provides a reasonable approach for meeting the technical requirements, providing the CMS waiver is documented appropriately. (To be fair, this is CMS "clarification" gone awry, not a Joint Commission standard, so George is doing the HTM community a service by attempting to interpret the CMS requirements).

- AEMs (alternative equipment management programs, another CMS interpretation conundrum). Interpretations include: Yes, we can use data from other hospitals in our AEM programs. Ultrasound (diagnostic and therapeutic) are included in the types of devices where we are NOT allowed to have AEMs for. Why is not clear. Also, there are new definitions for high risk (more type of device than just life support) and critical equipment that vary depending on which regulatory organization is "speaking".

New regulations are coming out with regard to patient dose management for CT scanners and other high radiation diagnostic devices (stay tuned).

Hospital HTM departments should be inventorying endoscopes since there is increased emphasis on endoscopy procedure infection prevention and associated cleaning and handling work flow.

Clinical alarms: There is a list of requirements to be completed in calendar 2015 in order to be compliant with the National Patient Safety Goal for clinical alarms. This is scored like a standard!

As an aside, combined Joint Commission, State of California/CMS surveys are no longer combined, so we can look forward to two sets of random surveys every three years.

The IEC 80001 course included a healthcare IT overview, details of the IEC 80001 standard, a session on project management and one on wireless with a case study. In addition to the standard, IEC 80001 now includes nine Technical Information Reports covering a variety of topics including security, wireless, network design

and more. Also of interest, IEC 80001 is up for its 5 year renewal in 2016 so soon a request for comments will go out to gather user input for potential inclusion in the updated standard.

AAMI's Benchmarking portfolio includes Sterile Processing, HTM and Quality systems. For the HTM piece, there continues to be some interest in the use of the cost of service ratio (COSR) and other metrics for measuring HTM programs although the amount of data provided by participants continues to be limited, particularly for those who want to parse the data sets to only compare against those in their own "peer group". It's perplexing to me that a majority of CE departments don't know their total service cost costs, and/or don't have device acquisition cost data. Or, are they just unwilling to share the data they do have?

That's it for now. I'm taking the summer off, but I'll be back at work in September. Have a good summer!

Ted Cohen

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## Journal of Clinical Engineering Call for Papers

The Journal of Clinical Engineering prints selections of the ACCE News in each issue and is interested in papers from you. If you have an urge to write, and good clinical engineering activities or ideas to share, please consider JCE as one of your outlets. One type of article not seen in a while is the Department Overview which presents how your department is structured and how it performs its functions. Shorter "Perspective" pieces are also welcome. You can discuss manuscript ideas with fellow member William Hyman, who is one of the editors of JCE.

Contact: [w-hyman@tamu.edu](mailto:w-hyman@tamu.edu). Send manuscripts to William or Michael Leven-Epstein at: [michael.levinepstein@gmail.com](mailto:michael.levinepstein@gmail.com)

# Education Committee Report



Give a “shout out” for ACCE’s new Education Committee co-chairs, Chris Falkner and Jennifer DeFrancesca. It’s so nice to see so many young clinical engineers taking an active role in our professional society.

As we come to the end of the 2014-2015 year, the Education Committee has really been on the move. First and foremost, we’d like to honor and thank the outgoing Chairman Jacob Johnson on his incredible work for the committee over the past two years. As we are transitioning into the Education Committee co-chair roles, we have certainly hit the ground running with a variety of initiatives for the 2015-2016 year.

The ACCE Symposium titled “Privacy & Security Risk Management for Clinical Engineers” at AAMI’s 2015 Annual Conference in Denver, CO saw unprecedented attendance as the standing room only group exceeded 300. Clinical Engineering and Information Technology Experts from private, public and governmental organizations showcased an extensive range of information and real-life lessons learned with regards to privacy and security in the healthcare industry. The first portion of symposium focused on potential cybersecurity risk for medical device vulnerabilities and equipped attendees with tools for evaluating the risk of their devices within their organization. The second part of the

symposium focused on the implementation of privacy and security programs within two different organizations. Lastly, Clinical Engineering pro’s facilitated a Q&A with all panelists that ran almost an hour with lively and pertinent discussion from the group. Thank you to our speakers, panelists and facilitators for the symposium including Dr. Dale Nordenberg, Mike Ahmadi, Christopher Clark, Bridget Moorman, Jason Newman, Scot Copeland, Carol Davis-Smith and Jennifer Jackson.

July promises to be just as exciting as June with the deadline for international CCE Exam applicants quickly approaching as well as the AAMI, ACCE and HIMSS sponsored CE-IT Town Hall: Medical Imaging

Across the Enterprise. As we move forward, the Education Committee will be kicking off its 2015-2016 Webinar Series in September. The group is already diligently working on a variety of offerings that will bring a new twist to some of the traditional mainstays of the program. Be sure to sign up for the webinar series and other Education Committee offerings on the ACCE website and contact us if you’d like to join the planning group for the webinar series; message us your interest at [educationchair@accenet.org](mailto:educationchair@accenet.org).

Have a safe and happy summer and we look forward to serving the ACCE community over the upcoming year and engaging a diverse audience with all of the Education Committee’s initiatives.

*Jennifer DeFrancesca*

[educationchair@accenet.org](mailto:educationchair@accenet.org)

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## International Report continued

*(Continued from page 5)*

well attended. Thanks to Mario Castaneda and Vladimir Quintero for their participation in this program.

The last activity in Toronto was the “2015 Stakeholder Meeting” conducted by the AAMI Foundation and GE Foundation to discuss Biomedical Equipment Technicians (BMET) training in low-resource countries. The discussion was presented and, as a result, the “Toronto Group” was created to advance this initiative. Thank you to Mary Logan, President of AAMI, and Asha Varghese, Director of Global Health Programs at GE for organizing this event.

Parallel meetings were held to discuss specific support for country activities. Among those, I should mention the increased demand for sup-

port in organizing undergraduate and graduate programs in Biomedical and Clinical Engineering. This could be done through collaboration agreements with academic centers around the world as well as internship programs for students in US and Canadian universities. We have the rest of the year to plan and support these collaborations.

Denver and Toronto are two cities to be remembered for their recent contributions to Clinical Engineering and Health Technology Management worldwide.

*Antonio Hernandez*

[InternationalChair@acce.org](mailto:InternationalChair@acce.org)

### **ACCE Job Website Job Postings**

For posting job opportunities, please contact Dave Smith at [advertising@accenet.org](mailto:advertising@accenet.org)



# Welcome to All the New Members

Name	Class	Job Title	Company	Country
Qusai Shikari	Individual	Manager, Clinical Technology	Kaiser Permanente	CA/USA
Nader Hammoud	Individual	Manager	UCSF	CA/ USA
Jesica Gisel Coronado Giles	Associate	Clinical Delgado	AUNA	Peru
Adriana Alarcon	Associate	Clinical Engineer Analyst	AUNA	Peru
Manjit Sahota	Individual	Director Clinical Engineering	Adventist Health	CA/USA
Prakao Rao	Individual	Sr Clinical System Engineer	Neurotics, Inc	PA/ USA
Ledina Picari	Individual	Expert for Medical Devices	Ministry of Health of Albania	Albania
Caridad Borrás	Individual	Self employed		DC/USA+ Spain
James Han	Institutional/Associate	BMET III	Cedars-Sinai Medical Center	CA/USA
Carlos Chung	Institutional/Associate	PE Manager	New York Presbyterian Hospital	NY/USA
Michael Braff	Institutional/Associate	Clinical Engineering Manager	New York Presbyterian Hospital	NY/USA
Viktor Benditch	Institutional/Associate	programmer analyst III	New York Presbyterian Hospital	NY/USA
John Duffy	Institutional/Associate	Biomedical Manager	New York Presbyterian Hospital	NY/USA
Eric C. Watkins	Institutional/Associate	Clinical System Engineer	Kaiser Permanente	CA/USA
Jeffrey Charzuk	Institutional/Associate	Clinical System Engineer	Kaiser Permanente	CA/USA
Abhijeet Bhat	Institutional/Associate	Clinical System Engineer	Kaiser Permanente	CA/USA
Marlene Davis	Institutional/Associate	Senior Clinical System Engineer	Kaiser Permanente	CA/USA
Michael Landis	Institutional/Associate	Director	Kaiser Permanente	CA/USA
Adelmiro E Acosta (Eddie)	Institutional/Associate	Clinical Engineer	Kaiser Permanente	CA/USA
Renan Roure	Individual	CEO	Infratec Equipamentos Cientificos Ltda	RJ/Brazil
Mary Coker	Individual	Director Clinical Engineering	Providence Hospitals	SC/USA
Connor Walsh	Institutional/Associate	Clinical Engineer	VA Indianapolis	IN/USA
Victor Wei	Institutional/Associate	Biomedical Engineer	VA San Francisco	CA/USA
Kasey Sayama	Institutional/Individual	Biomedical Engineer	VA Salt Lake City	UT/USA
Larry Fennigkoh	Individual/Returning	Professor	Milwaukee School of Engineering	USA
Ricardo Silva	Individual	Rector	Instituto Superior Tecnológico 17 de Julio	Ecuador
Duane Mariotti	Individual	Clinical System Engineer	Kaiser Permanente	USA

## Welcome to our new institutional members:

Kaiser Permanente  KAISER PERMANENTE.

New York Presbyterian Hospital  NewYork-Presbyterian



Congratulations to Jennifer Jackson, BS, MBA, CCE, FACCE, Cedar-Sinai, Los Angeles, on receiving ACCE Fellow status, shown here receiving her Fellow's plaque, from ACCE President Paul Sherman

# ACCE's 25th Anniversary "Founders" Commentary

*Editor's note: The following commentaries are from the ACCE "Founders" (the 1990 Group) and a few other key ACCE leaders.*

The thing to do, as we celebrate ACCE's 25th anniversary, is to raise a cup of tea. In a salute to bigger but similar acts of expression, the famous Boston Tea Party, we too asked who represents the clinical engineers' interests?

And that is how we started. A group of visionaries with a tall order of professional compassion and commitment for bringing the profession recognition agreed, 25 years ago, that clinical engineers are the right representatives of the profession. With guts and hard work the ACCE organization grew, overcame the doubters and other challenges to be a high quality, well-respected organization. We achieved much and I call on all clinical engineers to join ACCE in the continuing work of building the professional home we are all proud to be part of. Cheers!

Yadin David, Ed.D., CCE  
(Member of the 1990 group)  
ACCE President, 1990-1991

Those of us in that hotel conference room in Houston in 1990, who officially declared the existence of the American College of Clinical Engineering based on the vision and hard work of so many others, might have had a hard time imagining ACCE (or ourselves) twenty-five years later. Small in membership, huge in impact, ACCE has become an institution to be reckoned with. Let's keep the vision before us as we move into ACCE's second quarter-century.

Matt Baretich, Ph.D., CCE  
(Member of the 1990 group)  
ACCE President, 1991-1992

Congratulations to ACCE on 25 years of success! Many remember a classic Technical Iconoclast presentation where I successfully swayed the audience that Mothers Make Better Clinical Engineers. ACCE has survived the teenage years and moved nicely into adulthood. I still remember one of my first meetings where Joe Dyro cornered me, cigar in hand, and insisted I

join the board. I am glad I did, as it has been a true pleasure to work with such a fine group of Clinical Engineers and pioneer the way for many other fantastic motherly leaders! Everyone who has been involved in the leadership of ACCE should be proud of where we were and how far we have come. The next 25 years should prove to be just as exciting. I look forward to watching and participating in the future success of ACCE. Cheers!

Jennifer Ott, MSBME, CCE  
ACCE President, 1999-2001

In its first 25 years, ACCE excelled in leading our profession by providing international workshops in clinical engineering, championing CE Certification, and forging the partnership between clinical engineering and healthcare IT. Today, our members work with and are respected by people at all levels. I have no doubt that the next 25 years will bring continued growth and excellence for Clinical Engineering through ACCE.

Ray Zambuto, MS, CCE  
ACCE President, 2002-2004

ACCE has seen a tremendous growth over the last 25 years. The strategic partnerships that formed are a true testament to the organization's strong leadership and its diverse membership on a national and international level. In my two years as the President and quite a few more on the Board and various Committees, I have been fortunate to see some of these changes and partnerships flourish, however most importantly I enjoyed the friendships I have developed that will last a lifetime. I look forward to the next 25 years with ACCE!

Izabella Gieras, MS, MBA, CCE  
ACCE President, 2004-2006

I remember getting a phone call from Izabella Gieras inviting me to join the ACCE Board as a member at-large. That phone call (and many great experiences afterwards) helped open my eyes to what clinical engineering can bring to the world. For me, the organization and its members continue to serve as a source of leadership, warmth and zeal. And this unique community thrives on blazing new trails in health technology management for

the benefit of future generations of clinical engineers.

Jennifer Jackson, MBA, CCE  
ACCE President, 2008-2010

In 1979, a talented group of clinical engineering pioneers published an article with the title Clinical Engineering -- An Enigma in Health Care Facilities. So were we a paradox, conundrum, problem, mystery, riddle, puzzle, question, or a perplexity? In 1979, after being in the practice of clinical engineering for 7 years, I would have agreed that we were all of those things.

In 1990, a group of clinical engineers met to establish a professional society designated for clinical engineering. The mission, vision, and definitions of the new society helped give clarity to an ongoing professional endeavor.

Enigma no more!

Gerald R. Goodman, Ph.D., CCE  
(Member of the 1990 group)  
Board Member, 1991-1992

I had the privilege of being with Yadin and others on February 17, 1990 when ACCE began, and also had the privilege of joining the first board. We were passionate about CEs being all we could be; certainly balancing domestic concerns as well as partnership with international colleagues were early goals. Look at what we have done, and consider what we might do now.

Tom Judd, MS, CCE  
(Member of the 1990 group)  
ACCE Vice President, 1994-1996

It's been an honor to be associated with the American College of Clinical Engineering. I was fortunate to be one of the Founders in 1990 and to be the chair of the committee that developed the Definition of a Clinical Engineer that was approved by the Board in May 1991. The definition was later adopted by the Canadian Medical & Biological Engineering Society (CMBES), the International Federation of Medical and Biological Engineering (IFMBE) as well as the US Board of Examiners for Clinical Engineering of the international Certification Commission (ICC). Some of us are fortunate to still have the original ACCE Member T shirts that Yadin wore with impressive results.

*(Continued on page 11)*

# Founders continued

*(Continued from page 10)*

Our members have been at the forefront of all of the major issues in the field since its inception and will continue into the future. I'd like to recognize several key activities and the individuals who were involved through the earlier years.

The first Advanced Clinical Engineering Workshop (ACEW) was held in Washington DC, May 15-June 7, 1991 with attendees from 24 countries. It was the culmination of two years of hard work by Tom Judd, Binseng Wang, Yadin David and Frank Painter and was supported by the IFMBE and the Pan American Health Organization (PAHO).

ACCE crafted a response to the FDA when they published regulations regarding Medical Device User Facility reporting under the Safe Medical Devices Act of 1990. The letter signed by Matt Baretich was published in the March-April 1992 of the ACCE News. In our response, we offered many suggestions to improve the proposed regulations and posed many questions that we felt the FDA should address.

Under the leadership of Mo Kast, ACCE submitted a detailed response in 1992 to the FDA's proposal for Device Tracking Requirements for User Facilities. The letter was signed by President Dyro and also submitted to Congressmen John Dingell and Henry Waxman.

Wayne Morse designed the attractive and elegant ACCE lapel pins that we so proudly wear. In 1995 we began the first ACCE Teleconferences with the topic Understanding the Healthcare Marketplace. These courses were conceived by Wayne Morse and were implemented by James Wear, the ACCE Education Chair at that time.

With the leadership of Al Jakniunas, we developed the ACCE Guidelines for Donating Medical Equipment to help both the donors and recipients to effectively transfer technology with practical information.

ACCE developed a position paper in 1995 to address the FDA's initiative to

regulate medical device servicers and particularly hospital based service providers as part of the Current Good Manufacturing Practices Final Rule. We argued that the rule did not establish a factual basis for a concern that inadequate servicing led to significant risks to patients and that the potential benefits did not justify the excessive expected expenses. The effort along with input from many others was successful and the provisions were dropped and in-house departments do not have to report all service events to the manufacturers.

In 1997, Biomed Bubba was created by Joe Dyro as the antithesis of a real clinical engineer. He was heard to proclaim loudly and frequently "Biomed Bubba is my name and Electrical Safety's my game." I believe Biomed Bubba has finally retired as our focus has transitioned toward systems thinking for medical device safety, medical informatics, interoperability, and clinical alarms management.

In May 1998, Ira Tackel hosted the first ACCE Symposium on The Future of Clinical Engineering at the Thomas Jefferson University Hospital in Philadelphia. Additional ACCE Symposiums have since been held in conjunction with every AAMI Annual Meeting.

Engaging the FDA regulatory process again, Binseng Wang led the effort in 1998 and ACCE presented a formal response to the FDA's proposal to require servicers, refurbishers and reconditioners to register with the FDA and comply with the GMP/Quality System regulation.

We continue broad collaboration efforts with AAMI, HIMSS and the FDA on current issues involving medical device safety and have initiated the Clinical Engineering Hall of Fame to recognize those incredible individuals who have done so much to advance the profession.

Congratulations and thanks to all our members, a warm welcome to members-to-be and my best wishes for a fantastic future for the American College of Clinical Engineering.

Tom Bauld, Ph.D, CCE  
ACCE President, 1994-1996

It is hard to believe that we are already celebrating ACCE's 25th anniversary. I feel so lucky to have the opportunity to work with not only the founders of ACCE but truly the visionaries of our profes-

sion. What an amazing journey. Thank you Yadin for hosting our first meeting in Houston and thanks to the group that was there to work out our issues and agree on what is now the most recognized clinical engineering organization in the world.

Wayne Morse, MSMBE, MBA, CCE  
(Member of the 1990 group)  
ACCE Secretary 1990-1994

It is hard to believe 25 years have past since the inception of ACCE. Many have past through the doors of ACCE, and we are all better for their collective contributions.

As is usually the case, it is a team effort, and the success of any organization is greatly dependent on those who all contributed. That said, it is gratifying that several had the vision and tenacity to start such an endeavor. I am glad to have been a part of that effort. Congratulations to all who helped to found the organization, but also to all those who kept it going and provided a meaningful service to the profession of Clinical Engineering.

Ira S. Tackel  
(Member of the 1990 group)  
ACCE Treasurer, 1992-1996

I have had the honor of being a member of ACCE for nearly all of the organization's 25 year history and have had the privilege of serving as a committee chair or board member for almost half of that time. While ACCE's membership has more than doubled in recent years ... thanks in large part to the efforts of recent board members and our secretariat ... we remain relatively small as professional organizations go. However a great source of pride in my association with ACCE is that our size belies our impact. The appropriate boxing euphemism is that ACCE has always "punched above our weight." Our members have always been the thought leaders in the HTM/CE industry. ACCE members have always represented a high proportion of the authors of HTM/CE journals and speakers at a healthcare technology conferences. Our members are conspicuously leading standards development and initiatives such as collaboration between the CE and IT professional communities. ACCE members have helped shape the world of healthcare technology over the past 25 years and I'm confident we can foster new talent and continue punching above our

*(Continued on page 13)*



# The Clinical Engineering Hall of Fame

## A New Chapter in ACCE History

Over ACCE's 25 years, it has been important to honor those who have contributed in significant ways. Both to recognize, inspire, and encourage, particularly as ACCE looks "inwardly" for our profession. This year at the 25<sup>th</sup> anniversary Celebration and Reception in Denver on Sunday, June 7, we took a new step. We began the Clinical Engineering Hall of Fame (CE-HOF), see <http://accenet.org/HallofFame/Pages/Default.aspx>.

The CE-HOF honors those who have contributed in an "outward" way to society, both in our country and beyond. There were two winners in this 2015 Inaugural year: Joel Nobel, MD, & Jeff Cooper, PhD.



Joel Nobel, MD, awarded (posthumously) into the inaugural ACCE Hall of Fame

Joel's award was accepted by colleagues who had served with him at ECRI, Mark Bruley and Elliot Sloane.

Here is a very brief summary of Dr Nobel's extensive accomplishments:

Dr. Nobel is nominated for excellence in innovation, influence on Clinical Engineering, and technology evaluation in the US and the world.

One CE colleague notes: Dr. Nobel is

widely known and recognized as one of the pioneers of the application of engineering and managerial skills to support and advance patient care through technology. Although educated and practiced as a physician, he was never shy in crossing over to and working with engineering and other professionals to advance patient care through safe and judicious use of technology.

While a surgical resident, he designed and developed a mobile emergency life support and resuscitation system, call MAX, which was the precursor of the modern crash cart used throughout the world, saving countless lives. While developing an integrated Emergency Command System to respond to resuscitation and other emergencies, Dr. Nobel discovered that 9 out of 18 models of resuscitators were ineffective. This discovery motivated him to found in 1968 a non-profit organization dedicated to the testing and evaluation of medical devices initially called the Emergency Care Research Institute, now known as ECRI Institute.

Under Dr. Nobel's leadership, ECRI became a worldwide reference for technology assessment, product evaluation, risk management, and clinical engineering, including numerous publications such as Health Devices, Health Device Alerts, Health Devices Sourcebook, and Healthcare Product Comparison System. In addition to supporting American hospital and healthcare institutions, Dr. Nobel expanded ECRI's activities to numerous other countries, including industrialized countries in Europe, and developing countries in Latin America, Asia, and Africa. In the latter countries, he worked closely with health authorities at every level of ministries of health to help them understand and improve management of health technology activities. These efforts eventually led to the recognition of ECRI by the World Health Organization (WHO) as one of its Collaborating Centers in health technologies.

Dr. Jeff Cooper was present to receive his award. His story is inspirational for all of us wherever we are in our CE careers. Also see a more complete review of his work at the CE-HOF site. His *edited* story:

Jeff is nominated for his leadership in Patient Safety, Medical Simulation, and CE in the US and around the world. Here is an edited excerpt from where his accomplishments began, from the article, "This is No Humbug!" *Reminiscences of the Department of Anesthesia and Critical Care (DACC) at the Massachusetts General Hospital (MGH)*, available at <http://www.massgeneral.org/Anesthesia/assets/pdfs/Humbug.pdf>.

I had been at the MGH almost a year when I helped nearly to kill a patient accidentally. It was the first of several pivotal incidents for me and the DACC. I now can see how that single episode affected the rest of my professional life. There were similar events to follow. I and others were able to use these to effect change for the better at the MGH. And, when things changed at the MGH, they often changed wherever anesthesia is administered.

After 28 years, I finally do think it's "we." I and other engineers are really part of the team. At least some physicians actually think that way now. Here at the MGH, there was enough support and encouragement, and happily, an open field on which we could run, play, and make a difference. I'll explain what all this means and why it's important. First, bad story number one.

I was a "Clinical Engineer" (*Editor paraphrase*) in the Anesthesia Unit. My job was poorly defined; but in the early 1970s the technolo-

*(Continued on page 13)*



Dr Jeffrey Cooper commenting about his ACCE Hall of Fame induction at the ACCE 25th anniversary and awards celebration in Denver, June 2015.

# Hall of Fame continued



Jennifer Ott, Hall of Fame Nominations Co-Chair, presents Mark Bruley and Elliott Sloan with Dr Joel Nobel's ACCE Hall of Fame Plaque which will be displayed with other Dr. Nobel ECRI Institute memorabilia and awards at the ECRI Institute headquarters.

*(Continued from page 12)*

gy was relatively simple and primitive. I got invited to physician training. During training, an error was introduced (leak in the oxygen flowmeter). Afterwards, I was asked to leave the device where it could be repaired. I was worried, but did as requested. The next day there was an incident with that machine, the leak was discovered the patient became very hypoxic. Although a minor, elective procedure, the patient had not awakened (*initially*) from the anesthetic. The patient did later recover fully, but my doubts continued. I learned over time to trust my instincts, challenge authority when needed, and to (*change necessary processes to improve safety*). I also learned someone had installed a check valve upstream of the flush valve on many machines 'to protect the vaporizer from what is called the pumping effect.' Thus the leak introduced in the training would not have been detected by the procedure taught during training; years later FDA provided the correct procedure for prior checkout. This was ten years before oxygen analyzers became widely used in anesthesia.]

There are usually unintended consequences of safety features. More ominously, most clinicians don't understand how their equipment works. Neither lesson has been well learned to this day. My physician mentor always told me: 'There are no problems, just opportuni-

ties.' Although it drove me nuts when he said that, I now say the same thing to others."

What follows (*you can find the full pdf online*) in this fascinating story - involving colleagues, vendors, pro-

## Founders

*(Continued from page 11)*

weight for the next 25. Congratulations to all my ACCE colleagues for a job well done ... but remember the job continues and there's a new generation to inspire.

Steve Grimes  
ACCE President, 2006-2008

Congratulations to a wonderful organization on 25 years of invaluable service to the clinical engineering profession and healthcare organizations worldwide. ACCE provides great opportunities for friendship, leadership, and professional growth. I am proud to be a member and to have served in leadership roles on our Board, including during my Presidency from 2012-2014. Thank you to my ACCE friends and colleagues for all of your help and support during my time on the Board.

James P. Keller, MS  
ACCE President, 2012-2014

fessional societies, international meetings, etc. - is how Jeff and others developed what is called the Boston Anesthesia System (BAS) and other relevant device tools, e.g., before-its-time, a digitized tablet to visualize vital signs as they were being marked on the anesthesia record. What followed was perhaps the natural progression to analysis of Critical Incident Studies in Anesthesia. This later led to the development of the national Anesthesia Patient Safety (Foundation) movement in the US and globally.

Wow, Jeff, not bad! What is noted here is just a small part of your story, where you observed "opportunities" with key medical devices used in patient care, and had the guts and perseverance, as well as you note, the good fortune to work in a professional culture that encouraged yours and your colleagues' efforts to improve patient safety. May we all learn from your prodigious efforts.

Tom Judd

[Tom.Judd@gmail.com](mailto:Tom.Judd@gmail.com)

## ACEW continued

*(Continued from page 4)*

professional development, HT involved in evidence-based care, e.g., Mother and Baby Health, and emerging topics such as HT involvement in eHealth, telehealth, and medical device integration into EHRs.

In conclusion, there was strong commitment of WHO and PAHO for this activity, with a particular focus to address HT issues in new countries. It involved discussions with the countries for additional support, e.g., initial participant air tickets. There were outstanding learning and networking opportunities for participants with global colleagues to enhance current and future HTM approaches.

Tom Judd

[Tom.Judd@gmail.com](mailto:Tom.Judd@gmail.com)

# AAMI Update

## Record Attendance at AAMI 2015

The AAMI 2015 Annual Conference & Expo, an unrivaled event for healthcare technology management (HTM) professionals, had a banner year with more than 2,000 people registering for the event—a new record.

The Denver event, AAMI's 49th annual conference, featured a wealth of education sessions and speakers.

The event kicked off with an opening general session from cybersecurity expert Billy Rios, co-founder of Laconicly, which provides training and professional security services. He warned that attackers are becoming increasingly sophisticated. "I've been attacking and defending computers all of my adult life," said Rios, who cofounded Laconicly, "But this is definitely a young person's game, and it's hard to keep up. You will face someone better than I."

Tejal Gandhi, MD, president and chief executive officer of the National Patient Safety Foundation, spoke during the Dwight E. Harken Memorial Lecture, saying that, "... while it is a given that patient safety is an important aspect of healthcare delivery, more work remains to be done to ensure that optimal care is delivered."

"We really need to change the culture in healthcare so people are comfortable speaking up." Asking patients what is important to them can go a long way toward improving clinical outcomes and helping in the management of chronic conditions, she added. She detailed four other potential areas for improvement: care across the continuum, the workforce, transparency and metrics, and the use of health information technology.

## Mills Joint Commission Address

On the final day of the conference, George Mills, director of the Department of Engineering at The Joint Commission, told a packed room that healthcare technology management (HTM) professionals can play a key role in curbing an easily preventable cause of patient deaths.

According to Mills, 770,000 patients are affected by hospital-acquired infections each year. Of that number, approximately 80,000 die. "Who thinks that's an acceptable num-

ber?" he asked.

While it may seem like a simple solution, hand hygiene can play a major role in preventing these infections, he said. This emphasis needs to be ingrained in the culture of HTM departments, he stressed.

Mills also described the use of predictive medical equipment maintenance, saying it could be a big help to busy HTM professionals.

In terms of equipment maintenance strategies, Mills recommended starting with manufacturer recommendations as a baseline, then revising as needed from that point, with the key caveat that the process used is "defensible." Although Mills noted that predictive maintenance can be a boon for HTM professionals, it cannot be viewed as simply a "set it and forget it" type of action; predictive maintenance strategies require ongoing re-evaluation and follow-up.

## Updated AAMI Resources Available

Two resources, the *BMET Study Guide*, and the *Practicum for Healthcare Technology Management*, are now available for purchase from AAMI.

Revised and expanded, the *BMET Study Guide* now has 850 interactive questions and answers—each with a detailed explanation. Covering topics ranging from anatomy and physiology, to electricity and electronics, this is a popular resource for those preparing for the certification exams, but equally valuable for those just seeking to reinforce their knowledge.

"We had a much larger team working on this revision than any previous edition," said Ethan Hertz, a clinical engineer at the Duke University Health System and project manager. "Questions were written by a team of seven writers and independently reviewed by several HTM professionals. We want to make sure that this edition of the study guide helps those who are interested in taking the CBET exam feel as if they are well prepared."

Terry Bracewell, president of the Biomedical Society of Texas, was one of the guide's reviewers. With 45 years of experience in the field, Bracewell said even he found the guide helpful. "BMETs don't have the ability to stay current in all technological areas," he said. "This study guide allowed me to see my own weaknesses and gave me a list of areas I need to learn more about for my

own continuing education. This guide is perfect for experienced BMETs to assess their knowledge level."

AAMI would like to thank TriMedx, Stephens International Recruiting, and Universal Hospital Services for their sponsorship.

The second edition of the *Practicum* covers everything from healthcare facility management and medical device safety to human factors engineering and evidence-based medical equipment maintenance management. Based on Les Atles' *A Practicum for Biomedical Engineering and Technology Management Issues*, the book includes chapters on benchmarking, customer satisfaction, use errors, wireless spectrum management, and more. purchase a copy, visit [www.aami.org/store](http://www.aami.org/store).

Almost seven years after its last revision, a manual intended for those responsible for electrical safety in healthcare facilities—including healthcare technology management (HTM) and facilities engineering professionals—has been updated.

Authored by consultant Matt Baretich, president of Baretich Engineering, Inc., in Fort Collins, CO, the *Electrical Safety Manual, 2015* outlines the key components of an electrical safety program for medical devices and how to implement such a program. It also provides an overview of important codes, standards, and regulations that affect medical devices.

"A key objective of this manual is to provide a single publication that pulls together critical material from the full range of applicable codes and standards," Baretich writes in the introduction.

Two major changes from the 2008 edition are the inclusion of material regarding facility-related electrical safety—particularly information on isolated power systems—and the 2012 update to the National Fire Protection Association 99 Health Care Facilities Code.

In a foreword to the manual, Alan Lipschultz, president of HealthCare Technology Consulting, LLC, credited Baretich with assembling and distilling the information clearly and effectively. "Matt Baretich has done an excellent job of pulling together this *Electrical Safety Manual* and making it accessible to readers," he wrote.

AAMI Staff



# View from the Penalty Box

Well I missed AAMI, again, I made about 30 in a row from the 70's into the early 2000's but have missed most over the past 6 years. This year I had several reasons for missing Denver. One was that a grandson was graduating from high school, but more important was the content of the programs were mostly relooks at what we have been talking about for the last 25 years, or more. We have all sorts of computer geniuses, but we still do not have connectivity of devices to medical records in enough hospitals. In a recent article in the Boston papers it was stated that Partners is going to be paying out over 1.6 billion dollars to get their system working in just 3 of their hospitals over the next 5 years. But the local hospital that I was a guest at, for four days with a bleeding problem, had everything connected. The floors had a number of CoWs, (computer on wheels), and most of the physicians had tablets and everything was on the net. Small hospital, big progress. So, size of an institution means nothing unless the people want something to happen. Then their egos must be checked at the door and then things might get done. In looking over the various presentations many seemed to be set in the past, and very few were looking at the future. Where are we headed, and why is it taking so long? Those two questions need to be answered, ASAP, or our profession will sink into the IT world. As a group we have the potential to solve so many of the pressing needs in healthcare including costs but we have to come out of the penalty box and make things happen. Just like in hockey, maybe we will need to throw a few elbows, or use the stick or just put someone into the boards and skate away thinking we can win this game.

The ACCE session on Saturday morning looked interesting, and I hope it was well attended. I was told once that everything an engineer does carries a risk and a reward. We need to share our ideas, policies and procedures so that we are not stuck in a circle, but actively heading in a direction that will make our jobs more rewarding and reduce risks. Tell all about your successes and your "Ah ----" so we all can move forward.

In a newsletter that I received recently, on of the articles was on a tissue-engineered heart valve that will not degrade over time.

Are pig valves still used or have we gotten past them with good engineering? Another article was about building replacement kidneys in a lab, that will save a lot of money and help many people. It is engineering that is driving that work. We have teenagers designing and making low-cost prosthetics using 3-D printers. There was a recent article in the general press on the bombing victims of the Boston Marathon saying that it will cost over \$20,000 every five years or so to replace the present limbs. While teenaged engineering wanna-bes are doing arms and hands for under a thousand dollars. Maybe we need to get them more involved. Just think about all the equipment that they could build with input from people like you. How many of us have said in the past, "we should be able to do that

better, faster or cheaper"? Let's take those thoughts and do something with them. We can do it. We just have to try.

In closing we have the ability to do so much, and we just need to start to move from our comfort zones of benchmarking, writing reports that no one in administration reads, and unneeded PM testing to something that actually helps patients and staff. Have a great summer.

Dave Harrington

[dave@sbtttech.com](mailto:dave@sbtttech.com)



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# ECRI Institute Perspectives: Preventing Hazardous Technology Decisions

In the ever changing healthcare technology landscape, two unsurprising factors are leading to surprising technology incidents and, thereby, making the fundamental role of the clinical engineer more critical than ever.

Clinicians and other healthcare technology decision makers are not always able to stay on top of the current stage of technology development or the details of the specific devices they use.

Technology suppliers often have limited understanding of how their technology is applied in the clinical setting, if not in general, at least in your local implementation.

This month ECRI Institute published two reports to raise awareness about avoidable and potentially fatal technology hazards that have resulted from technology implementation and management decisions made at actual health provider organizations. These Hazard Reports highlight the responsibility of the clinical engineer in ensuring that technology is safely and effectively implemented, used, and maintained on a local level.

The first of these reports addresses a misconception that appears to be common among clinicians and healthcare administrators about the capability of a ubiquitous medical device system. ECRI has observed this technology implemented and used in a manner that is overly reliant on the technology's ability to detect dangerous patient conditions, leaving patients unnecessarily vulnerable. The technology is not defective, but it is sometimes being misused because of bad information.

The other report covers ECRI's investigation of incidents in which powerful mechanical systems have caused injuries or sustained damage that could have been avoided if field corrections had been implemented in a timely manner. In some cases, corrective action had been delayed because the problem, as described in the manufacturer's safety notice, did not clearly apply to the imple-

mentation at a particular healthcare provider organization.

Both of these reports illustrate why it is so important for the clinical engineer to serve as a local technology expert who understands a) how the technology works, b) how it has been or is being implemented locally, and c) how knowledgeable are the local users, buyers, and other decision makers.

To be effective in this role, the clinical engineer needs to keep up to date on each technology that he/she manages both in general and in detail. This means keeping current with what is being reported inside and outside of your organization. It means reading the details of each safety notice. It means making the extra phone call to your

supplier to confirm whether or not a particular update is necessary for your installation. And finally, it means picking up on signals about the competence of technology users from internal sources.

When an electrosurgical unit is returned for service or inspection because it "started a fire," you need to detect that there is a problem with knowledge of the technology and look into which users do and do not understand how the technology works. And as always, when you need support in developing and delivering these messages, contact ECRI for supporting information and consultation.

*Eric Sacks*

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## Thank You to Teleconference Speakers

The Education Committee would say a big "THANK YOU" to our speakers from the 2014-2015 Webinar series.

They made it possible to have a very successful Webinar Series. We had a lot of distinguished speakers from all over the country, representing manufacturers, hospitals and other healthcare-related organizations. We had doctors, clinical engineers, IT representatives, managers, directors, administrators, etc. We would like to thank all of them for taking time out of their busy schedule to share with us their knowledge and help us advance the Clinical Engineering profession.

These speakers not only took time out of their busy schedule to support ACCE through the Webinar Series, but they did this for free in order to help ACCE save money and use it to support other ACCE activities.

**John Hatcliff, Ph.D.**, "Interoperable Medical Device Interface Safety"

**John J. Garguilo, MSc, Steve Merritt, MS, Jim Smith & Carlene Anteau**, "IHE PCD – Overview and Specifics for the Patient Care Device Professional"

**Robert Hijazi, PhD, MS, CCE**, "Service and Support Strategies"

**Bridget Moorman, MSBME, CCE**, "Part I: Career Development for Device Integration"

**Dale Nordenberg, MD & Steve Abrahamson, MBA**, "Privacy & Security"

**Jeffrey Peterson, MS, Sheena House, CCE & Jacob Johnson, MS CCE**, "Innovators Showcase: Three Clinical Engineers Leading the Way"

**Shelly Crisler, MS CCE**, "Incorporating ECRI, JC, NFPA 99 and Project Management Risks into CE Program"

**Matt Wheeler, MS, CCE; Alan Lipschultz, CCE, FACCE; Hank Goddard, MBA & Jim Smith**, "Implementing a New CMMS"

**Roger Lam**, "mHealth"

[Educationchair@accenet.org](mailto:Educationchair@accenet.org)

# GE Foundation and AAMI Foundation Meet to Discuss Global BMET Training

On June 11-12, 2015 in Toronto, Canada, about 40 people representing various aspects of the international BMET training arena, including training providers, ministries of health, consultants, independent experts, NGOs, IGOs, professional associations and societies, corporations, and foundations met to discuss global BMET training. Objectives of these discussions were:

- Create a collective vision by soliciting the general hopes for a desired future in three to five years
- Define the current state of BMET training in the developing world; identify the current situation and challenges
- Identify what is needed to address the current state and desired future; strategize on how to close that identified gap between the current and desired future states
- Make recommendations

The meeting was held in conjunction with the IUPESM World Congress on Medical Physics & Biomedical Engineer-

ing. It began with a welcome reception and dinner that included welcoming remarks by GE Foundation's Asha Varghese and AAMI President Mary Logan. The reception was a great opportunity for old friends involved in global healthcare technology management to reunite and for new friendships to be made.

The following day, participants met all day to lay the foundation for a global strategy for BMET training. The meeting kicked off with keynote remarks by Dr. David Barash of the GE Foundation and continued with active participation by all stakeholders in analyzing the obstacles and opportunities and creating an action plan. The starting future vision the group was provided to work with and refine was:

*- In three to five years, we will have a scalable BMET model that trains and employs quality biomedical technicians in low resource nations around the world. The BMETs are respected members of the clinical team and hospital staff and access to a system of ongoing professional support and development. Equipment is available and appropriately utilized for positive patient outcomes.*

GE Foundation and AAMI Foundation will prepare a report summarizing the meeting's recommendations and action points for implementation. A listserv discussion forum for the stakeholder group has been formed and the group, informally dubbed "The Toronto Group" has committed to remaining an active and influential force in global BMET training.

ACCE was more than well represented in this meeting with 13 current members in attendance, including Antonio Hernandez, Mario Castañeda, Tom Judd, Tobey Clark, Yadin David, Ricardo Silva, Robert Malkin, Bill Gentles, Tony Easty, Ismael Cordero, Mulugeta Mideksa, James Wear, and Adriana Velazquez.

*Ismael Cordero,*

*President Elect, ACCE*

[ismael.cordero@me.com](mailto:ismael.cordero@me.com)



The "Toronto Group's" first meeting to discuss global BMET training with representation from around the world.



# 2015 CCE Review Course

## Written exam review webinar series

Wednesdays – August 12 through October 14, 2015

12:00OM – 1:00PM (Eastern Time)

Faculty: Matthew Baretich, Tobey Clark, Ted Cohen, Frank Painter.

Registration Deadline: July 31, 2015

The Clinical Engineering and CCE Review Class will provide an overview of the 2015 CCE examinations topics which is based on the Clinical Engineering Body of Knowledge (BOK) survey. This 10 session series will be presented by a group of ACCE Faculty who are CCEs. The class will outline and present the material in each of the main subject areas covered on the exam. The course will help you identify areas in which you need further review and help in preparing for the CCE examination. It will also provide an opportunity to “meet” other candidates to form study groups.

To register: email or fax the [Registration Form](#) to [secretariat@accenet.org](mailto:secretariat@accenet.org)

	Countries/column 1	Countries/column 2	Countries/column 3	Countries/column 4
<b>Members</b>	US\$ 150.00	US\$ 100.00	US\$ 70.00	US\$ 50.00
<b>Non-members</b>	US\$ 250.00	US\$ 170.00	US\$ 110.00	US\$ 75.00

Rates are pro-rated according to this World Bank classification [table](#)

**Disclaimer:** This course is prepared and offered by individuals who are not involved in the preparation of the CCE Exam.

## In Memoriam: Myron Hartman, Teacher and Mentor

Myron Hartman, October 14, 1958 - May 4, 2015

“Myron Hartman’s first job after graduation was with ECRI Shared Services (now ISS) in Western Pennsylvania. As one of the first people I hired I followed Myron’s career with interest. Myron was a well-respected and well liked CE department manager early in his career, but he really made his mark as a Biomedical Engineering Technology teacher and program director at Penn State New Kensington. Myron was a natural teacher and very much enjoyed passing his knowledge along to others. He was committed to doing a good job and was very much appreciated for his enthusiasm. A little more than a year ago Myron and I went to Riyadh together to teach a three day CBET review and two day CCE review class to a group of BMETs and clinical engineers from a large healthcare system there and it was a great success.

Myron will be remembered by me for focusing his life’s efforts outward, by helping others every step of the way.”

*Frank Painter, MS, CCE*

[frpainter@gmail.com](mailto:frpainter@gmail.com)



Myron Hartman, center, seated, at the CBET and CCE Review he co-taught in Riyadh Saudi Arabia, in 2014

# Healthcare Technology Foundation continued

(Continued from page 2)

of the collaboration agreement between the Association for the Advancement of Medical Instrumentation (AAMI) and the Healthcare Technology Foundation (HTF) development began on the format and content for a training workshop program on risk management of integrated systems.

Through a needs assessment conducted by HTF and AAMI, training on the processes and methodologies needed to manage risks associated with networks and integrated systems was identified to fill-in the knowledge gap felt by healthcare technology management professionals – including biomedical equipment technicians, clinical engineers, information technologists, safety officers, and facility managers. The goal of the developed program is to make these professionals more knowledgeable about the resources and strategies associated with a safe patient care in the evolving integrated healthcare environment.

The project entailed the development of four (4) modules on networking and integration; ANSI/AAMI/IEC 80001-1 Risk Management; project and change management; wireless deployment and tools and resources to sustain safe integrated systems related to networked environments. In addition to drafting content, developers conducted a needs survey within the communities of HTF, AAMI and ASHE societies. The content was reviewed by experts in the field, through the early webinars and face-to-face workshops held in late 2013 and 2014. It is now available on AAMI University website and further expanded and adapted for launching an on-line program this summer.

On June 7<sup>th</sup>, during the 2015 annual AAMI Conference & Expo in Denver, CO, an updated full day workshop was offered. The workshop described an up-to-date methodology for managing systems' risk related to the integration of technological tools through networks. About forty (40) individuals attended the program mostly from healthcare provider organizations. They heard superb faculty with over 100 combined years experience presenting their expertise in hands-on networks risk management, in risk management method-



Tobey Clark, HTF Past President, presents "Insights into the Problems of Alarm Fatigue Associated with Physiologic Monitoring Devices" at the Toronto World Congress on Medical Physics and Biomedical Engineering

ology with the most recent updates of the IEC80001 standard, in systems project management and in wireless platform integration.

After Yadin David made the introductions and covered the objectives for the workshop, a survey about attendee's readiness was taken. The faculty began their presentations with **Ted Cohen**, MS, CCE, manager of Clinical Engineering at UC Davis Health System, **Sherman Eagles**, partner at Software CPR, Co-Convener, ISO/IEC Joint Working Group on risk management of IT-networks incorporating medical devices Editor, IEC 80001-1; **Ken Fuchs**, Executive VP at the Center for Medical Interoperability, the recipient of the ACCE 2014 Professional Achievement in Technology Award/Professional Development Award; and **Phil Raymond**, Wireless Architect & Global Network Product Manager in Philips healthcare's Connected Care Solutions. Phil currently serves as the chair of the Wi-Fi Alliance Healthcare Marketing Task Group, is a contributing member and co-chair

of the AAMI Wireless Strategy Task Force, and participates in the connectivity standards development space including IEC/ISO 80001-1. He also serves as the co-chair for the IEC/ISO 80001-2-3 Wireless Guidance Technical Report team. As a summary, the faculty presented case studies demonstrating the material presented during the day and addressed many questions and comments made from the attendees. It was dynamic and successful event.

Be sure to visit the HTF website, [www.thehtf.org](http://www.thehtf.org) to see our programs and resources. While you are there, feel free to hit the **DONATE NOW** button. We will accept them anytime and they are always tax deductible!

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## ACCE Calendar

**July 11, 2015**

Deadline for 2015 CCE exam application for applicants testing outside the US/Canada

**July 10 - 28, 2015**

ACCE Board election

**July 30, 2015**

CE-IT Town Hall: Medical imaging across the enterprise. [Register](#)

**August 8, 2015**

Deadline for 2015 CCE exam application for applicants testing in the US/Canada

**August 12 - October 14, 2015 (Wednesdays)**

CCE Review Course - Webinar Series

**September 2015**

2015-2016 ACCE Educational Teleconferences begin

**November 7-21, 2015**

2015 Clinical Engineering Certification Written Examination

**Contributions to the ACCE newsletter are always welcome. For ACCE Newsletter Guidelines, please go to:**

<http://accenet.org/publications/pages/newsletterinfo.aspx>

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AMERICAN COLLEGE OF CLINICAL ENGINEERING

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