



# ACCE News

Newsletter of the American College of Clinical Engineering

May-June 2016

Volume 26 Issue 3

Celebrating 26 years

# ACCE

AMERICAN COLLEGE OF CLINICAL ENGINEERING

1990-2016

**Special Report:**  
**ACCE Body of Knowledge Survey**  
**Results: [See page 15](#)**

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## President's Message



Happy summer, everyone. I'm looking back over the past years and am pretty surprised this is my next-to-last presidential newsletter. I believe I'll turn over the reigns pretty close to my 60th birthday. Until then, ACCE's been pretty active, and there is more to come.

### AAMI Recap

This year's symposium was a major hit - again. The entire Education Committee did a fantastic job of organizing the many speakers and grouping the sub-topics. I was curious on how changing it to a breakfast event would work out. The turnout was the largest yet and the feedback was all positive. I want to thank the Education Committee for all their hard work and making it easy for me to open the event, and especially Chris and Jennifer, who kept it moving along. And a huge thank you to Larry Hertzler

and the rest of Aramark, for sponsoring our breakfast - it was a great feed.

One update: As many of you know, Ken Fuchs, one of our presenters, collapsed shortly after his presentation. Luckily, Dale Nordenberg, MD, another presenter, was able to help Ken until EMS arrived. I won't detail what happened to Ken, but he's doing OK now.

The ACCE annual meeting and reception went very well again. This is very much due to Suly Chi's hard work at organizing the event, as well as finding sponsors. Financially, this year's reception risked costing ACCE quite a bit of money. We had a major sponsor back out about a month before the event. Luckily, Suly and Mario Castaneda worked their fundraising magic and found enough sponsors to make up the difference. Some highlights of this year's meeting were the induction of Malcolm Ridgway into the Clinical Engineering Hall of fame, awarding Mary Logan the ACCE HTM Champion award and welcoming our Japanese Association of Clinical Engineers colleagues. It was a great evening. For those who noticed - yes, I was in a fair amount of pain. Unfortunately, my back flared up, making standing a wee bit of a challenge.

### ACCE activities over the last year.

Body of knowledge update - We owe a big thanks to Arif Subhan, Katherine Navarro and Sarah Brockway for working very hard this year updating the Clinical Engineering Body of Knowledge. Their work helps us know where our profession is and where we are headed. It also helps the CCE Board of Examiners update the CCE exam's content to ensure they test for the most relevant skills and knowledge. (see page 15 for the results of the Body of Knowledge Survey)

Bylaws update - As many of you know, the ByLaws Taskforce has been working very hard for the last 8 months to update our bylaws. As ACCE has grown and changed, our bylaws had not evolved to meet our needs. Bit by bit, the Taskforce has provided updates. The first, and most critical, was to change the Bylaws voting process to reflect real-world expectations. Originally, any bylaws change required a written vote by the majority of all members. That restriction made it VERY difficult to reasonably change them. Now it requires a majority of those who respond. While this risks a minority making the decision, experience in other organizations (including standards creators) has shown that respondent voting is representative and generally statistically valid. Requiring a majority of all members

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# President's Message continued

*(Continued from page 1)*

would risk paralyzing progress without changing the eventual outcomes. With that out of the way, the Committees are updating their info and providing updates. When changes come up for vote, please look at them and provide your feedback. Your feedback is one of the ways we can provide a solid foundation for ACCE's future.

**Audit** - By the time you read this article, Jim Panella will be working with an accounting firm to audit our finances. This is required for ACCE to formally become a Non-Government Organization (NGO) with WHO. And it is a good idea overall for ACCE. As ACCE has grown over the years, we have accumulated a fair amount of money and have never been audited. The audit will help identify any process related shortfalls and assure that the Board is being good stewards of your resources.

**AIMBE representative** - ACCE has been a member of the American Institute for Medical and Biological Engineering (AIMBE) for several years. AIMBE is a non-profit organization headquartered in Washington, D.C that performs a lot of advocacy and policy guidance on behalf of the related professions. In essence, they are a lobbying organization with excellent connections to Congress. We have several ACCE

members that are AIMBE Fellows, but ACCCE has not had formal representation. AIMBE held a face-to-face meeting in Washington, DC in early April. They invited ACCE to send a representative and since it was short notice we decided a local member could fill that need. Luckily, Antonio Hernandez was able to attend the meeting and bring back information. Also, Antonio was willing to act as our formal representative to AIMBE. In my role as President I appointed Antonio to that position and the Board has concurred. Please join me in thanking Antonio for taking on this responsibility. As we develop this relationship, ACCE will be able to provide guidance and promote our activities and expertise at the federal level.

## Response to FDA on 3rd party servicing.

On June 1, ACCE submitted its formal comments to the FDA on their Request for Comments concerning "Refurbishing, Reconditioning, Rebuilding, Remarketing, Remanufacturing, and Servicing of Medical Devices Performed by Third-Party Entities and Original Equipment

Manufacturers". I'd like to start by deeply thanking the ACCE workgroup that created our comments. They were: Malcolm Ridgway, Alan Lipschultz, Binseng Wang, Jim Caporali, Barbara Maguire, Ira Lapidés and Dave Francoeur. I may have missed someone - apologies in advance. The work summarized our collective experience and provided a good logical response to the FDA's request. Many others submitted comments, including ECRI and AAMI. I highly recommend going to the FDA's website to review the comments, especially from those with conflicting views. See: <https://www.regulations.gov/#!docketBrowser;rpp=100;so=DESC;sb=docId;po=0;dct=PS;D=FDA-2016-N-0436>

## Looking to the future

**Expanding Certification** - Lately Mexico and other countries have approached ACCE regarding expanding the CCE certification into their countries. The HTCC has this type of relationship with Canada. Canadian candidates can take the US written exam (with US specific questions exempt from their scoring.)

*(Continued on page 3)*



For the ACCE Symposium at AAMI 2016, fifteen speakers discussed the "Impact of Medical Device Integration (MDI) on Medical Device Assessment and Procurement". There was a great turnout for the early Saturday event with over 350 people attending.

## ACCE News

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

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# President's Message continued



Renato Garcia (center) accepts the ACCE/HTF International ACEW award from ACCE President Paul Sherman and the Healthcare Technology Foundation (HTF) President, Paul Coss (right). Garcia traveled from Brazil to accept the award for his organization, the *Intituto de Engenharia Biomedica, Federal de Santa Catarina (IEB-UFSC), Brazil*. The award was given in recognition of IEB-UFSC's leadership and impact in Brazil and other Latin American countries, after two ACEWs (2006 & 2013).

(Continued from page 2)

Then they have their own oral exam, expanded to address country-specific regulatory issues. There are many challenges regarding expanding the program further, but I'm confident that the HTCC and ACCE will work those out. The first is educating the interested countries on the separation between ACCE and HTCC. ACCE's role is to be a 'home' for HTCC, but we have minimal influence over their operation. That separation is necessary to allow the exam process to remain independent. ACCE can fully promote certification, provide CCE preparatory education and survey the field (the Body of Knowledge). To ensure independence, we can't manage any part of the actual certification process nor be involved in test question generation.

Looking at what I listed above, we have accomplished a lot in the last year or so. This really is due to your trust in the Board and volunteers. And, we ALWAYS can use volunteers. Helping on a short term project or committee helps you make a difference in the profession. One fantastic side benefit is the people you meet and work with, many of whom will become life long friends. Please consider it.

Until next time, enjoy the summer and stay as comfortable as you can.

Regards,

Paul Sherman

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

## 2016 ACCE Officers and Board Election

The June 4<sup>th</sup> Board meeting was held in person during the AAMI conference in Tampa, Florida.

The complete slate of nominations for the 2016-2017 ACCE Board of Directors was presented by Jim Keller, on behalf of the Nominations Committee. The slate was presented as follows:

- President: Petr Kresta
- President-Elect: Arif Subhan
- Vice-President: Alan Lipschultz
- Secretary: Elena Simoncini
- Member At Large: Joan Brown
- Member At Large: Shelly Crisler
- Member At Large: Ilir Kullolli
- Member At Large: Samantha Jacques
- Returning as Treasurer: Jim Panella

Paul Sherman will automatically become Immediate Past President upon election of the new President.

This slate was approved by a unanimous vote by the Board, and was presented at the Annual Membership meeting on June 5, 2016.

Elections will be held in July, with the new Board taking office at the first meeting in August. The August meeting will be a joint meeting of old and new boards.

Suly Chi

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

## 2016 CCE Certification: New Applicants and Renewals

### New Applicants:

The next CCE exam will be given on November 5, 2016 thru November 19, 2016. The deadline for applications is **August 06, 2016** for applicants testing within the United States & Canada and **July 9, 2016** for applicants testing outside the United States & Canada. Arrangements can be made to take the written exam in most major cities around the world by contacting the Secretariat for HTCC at [certification@accenet.org](mailto:certification@accenet.org).

You may apply to take this exam by downloading [the handbook](#) and [applica-](#)

[tion form](#). After reviewing the Handbook, please contact the Secretariat for HTCC at [certification@accenet.org](mailto:certification@accenet.org), or by telephone (610-567-1240), or fax (815-642-0658) with further questions.

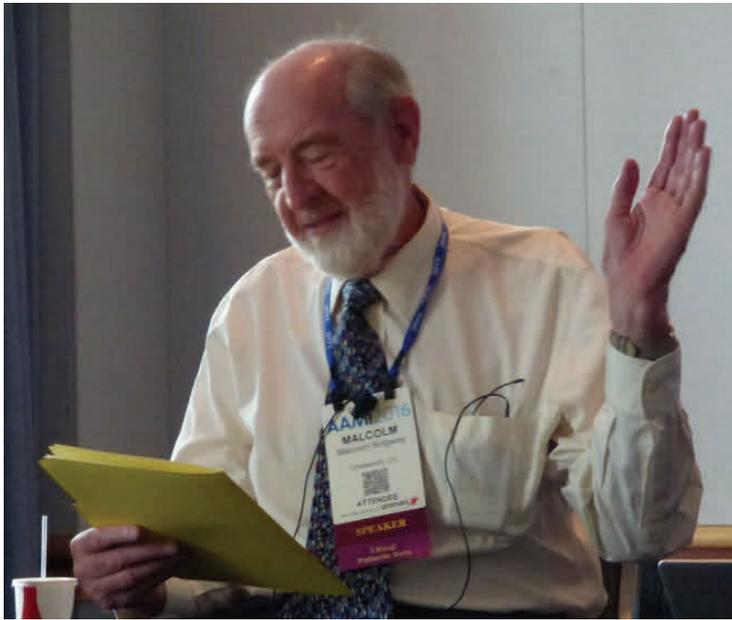
### CCE Renewals:

CCE renewal is required once every three years. The [2016 CCE Renewal Handbook](#) and Renewal Application Form can be downloaded from the [CE certification webpage](#).

The renewal fee can be paid by check or via PayPal on the [ACCE website](#)

Any questions can be directed to Deb Huberty, the HTCC secretariat, at [certification@accenet.org](mailto:certification@accenet.org)

# Pictures of an Exhibition: ACCE at AAMI 2016



AAMI 2016 in Tampa Florida honored many ACCE members who have served the Clinical Engineering/HTM community including from left to right, top to bottom: Malcolm Ridgway, Mary Logan, Nat Sims, MD; Tom Judd, and Frank Painter. Malcolm was inducted into the ACCE Clinical Engineering Hall of Fame for his decades of tireless work on issues that really matter to healthcare technology. Malcolm also received Emeritus Member status from AAMI, to add to his many Clinical Engineering honors. Malcolm has been a clinical engineer for more than 50 years and is a legend in the health care technology management field. In a special session dedicated to Dr Ridgway, AAMI paid tribute to Malcolm's work in the Clinical Engineering/HTM field. Mary Logan, President/CEO of AAMI, shown receiving the ACCE HTM Champion award from ACCE President Paul Sherman, is a staunch Clinical Engineering/HTM advocate and will be retiring from AAMI at the end of 2016. We will miss her! Nathaniel Sims, MD, receives his Marv Shepherd Patient Safety award from Paul Sherman and Paul Coss (right), Healthcare Technology Foundation President. Dr Sims is a pioneer in the patient safety area and among his many accomplishments is his work toward improving infusion pump safety with "smart pumps". Tom Judd, ACCE's past Advocacy Committee chairman, has been in the forefront of US and international clinical engineering for many years, Tom receives the Tom O'Dea Advocacy award for his promotion of Clinical Engineering in the US and throughout the world. Frank Painter, Adjunct Professor at the University of Connecticut has, among many other clinical engineering accomplishments, educated more masters degree-level clinical engineers than all others combined. Frank received the ACCE Lifetime Achievement award to add to his awards collection. Congratulations to all!

# Healthcare Technology Foundation News:

## Moving Towards a True Foundation



Improve healthcare delivery outcomes by promoting the development, application and support of safe and effective healthcare technologies

### **HTF Moving Towards a True Foundation**

What happens when a bunch of 'doers' get together to lead a Foundation? You continue 'doing'! Well, the time has come to stop this nonsense. Bill Hyman and Mike Dashefsky, former board members, may be having déjà vu! Honestly, we keep trying and failing. However, with our current leadership structure, the HTF is poised to move forward and stop doing! This was the primary discussion point at our recent Annual Meeting held in conjunction with the 2016 AAMI Conference & Expo. We have money in the bank. Let us look at our mission and use those funds! We currently have three main focuses: Alarms, Patient Education/Home Health, and Managing Risks of Integrated Systems. Take a look at our mission above. Do you have any ideas that fall within those main focuses, align with the mission, and can be accomplished? What great concepts in patient education do you think is lacking? What alarm items need attention? What are the next steps in getting people to understand and implement managing risks? WE NEED YOUR SUGGESTIONS! Please feel free to send any suggestions to the contacts below.

### **HTF Holds 2016 Elections**

In conjunction with the annual meeting, HTF held their 2016 Board elections. Marge Funk was elected to a third term on the Board. Tom Bauld, Ronda Bradley, Karen Giuliano were all elected to a second term on the Advisory Board. Jill Marion was elected to her first term on the Advisory Board. Jill comes to HTF from the FDA. She replaces Nancy Pressly, who has been a member of HTF for over seven years. HTF thanks Nancy for her years of participation and being the FDA liaison. Jill is currently the Director, Division of Patient Safety Partnerships and the Director, Medical Product Safety Network (Med Sun). We look

forward to continuing our strong relationship with the FDA and impacting our mission!

### **HTF Board Members Jennifer Ott and Tobey Clark present at ACCE Symposium**

Jennifer Ott and Tobey Clark recently presented at the 2016 ACCE Symposium, Impact of MDI on Medical Device Assessment & Acquisition, held on Saturday, June 4 at the AAMI Conference & Expo. Jennifer presented on infrastructure considerations. Tobey presented on technology replacement considerations and the importance of a robust Request for Information document.

### **HTF Alarm Survey Results Presented**

Tobey also presented the preliminary results from the 2016 Clinical Alarms Survey. More analysis will be forthcoming. Not surprising, we still have a lot of work to do before alarms are no longer a concern with the clinical staff.

### **HTF Board Members Active at AAMI Conference**

HTF Board member were very busy at the AAMI Conference & Expo. In addition to what was mentioned previously, we also had the following presentations:

Erin Sparnon – Top 10 Issue Facing HTM: An Open Discussion

Tobey Clark, Yadin David, Barrett Franklin – Strategic Planning: Tools to Map the Future: The session focused on sharing tools and techniques for successful strategic planning. They examined current frameworks for excellence, resources such as the AAMI HTM Levels Guide, case studies of strategic

plans, and the processes used for strategic plan development.

Barrett Franklin – Transitioning Perspective: from HTM to Supervisor to HTM Leader: Insight into making the transition within your organization from Healthcare Technology Manager to Healthcare Technology Leader. The presentation focused on different methods to improve the communication with C-suite leadership and to gain buy-in from senior leaders in supporting your HTM organization. Topics covered included: methods of communication, financial management, big picture perspective, methods for senior leadership engagement, developing a rapport with your leadership team, communicating needs, and negotiating expectations.

Paul Sherman – The Technical Iconoclast – always a hoot!

### **HTF President Emeritus Recognized for Historical Event**

Yadin David is noted in the 24x7 article, 'Turning Points in HTM History'. The "infamous" meeting in 1990 in Houston that started ACCE! [http://www.24x7mag.com/2016/05/turning-points-htm-history/?utm\\_source=newsletter&utm\\_medium=email&utm\\_term=24x7+Jolt+5%2F17&sp\\_rid=MjQxMTE4NTIwMDcSI&sp\\_mid=14502680&sp\\_inm=SjTurning%20Points%20in%20HTM%20History&spMailingID=14502680&spUserID=MjQxMTE4NTIwMDcSI&spJobID=781195588&spReportId=NzgxMTk1NTg4S0](http://www.24x7mag.com/2016/05/turning-points-htm-history/?utm_source=newsletter&utm_medium=email&utm_term=24x7+Jolt+5%2F17&sp_rid=MjQxMTE4NTIwMDcSI&sp_mid=14502680&sp_inm=SjTurning%20Points%20in%20HTM%20History&spMailingID=14502680&spUserID=MjQxMTE4NTIwMDcSI&spJobID=781195588&spReportId=NzgxMTk1NTg4S0)

### **Global CE Success Stories**

This is an effort led by Yadin David and Tom Judd. Jim Wear and Tobey Clark are also participating. These are success stories presented at the WHO's World

*(Continued on page 6)*

# Perspectives from ECRI Institute: Standardized Inventory Data for Improved Recall Management

Equipment inventory data is notoriously messy. Reviewing one health system's data today, provides plenty of examples:

- Same anesthesia vaporizer on inventory at two facilities, but model name differs by a hyphen.
- Same model of ESU on inventory at two facilities listed under three different manufacturers and two different device categories.
- Hundreds of the same model infusion pump at multiple facilities with consistent model name... ..except those pumps at a few of the system's outpatient sites.

Depending on your search strategy, when you search inventory for devices subject to a recall, how can you be certain that you have found all, not just some of the affected equipment? And how do you reach out to the people in all those patient care locations to find those affected devices?

Nonstandard inventory data exists for a variety of reasons: data entry errors, model name abbreviations, equipment manufacturer mergers and re-brandings. Even if you undertake the massive effort to standardize all of your data, you can bet your health system will acquire another hospital and ask you to import its dirty data into your maintenance management system. So having a process in place to keep your inventory data clean is essential to reliable maintenance, planning, and response to safety alerts.

In the long run, the Unique Device Identifier (UDI) initiative should make it a lot easier to keep accurate, standardized medical device inventories and facilitate streamlined recall processes, but it will be a long time before all of the current

equipment with no UDI ages out of the system. So we need a way to efficiently and reliably manage recalls in the interim.

To support this need, ECRI recently released Automatch for Equipment, the long-awaited enhancement to Alerts Tracker that automatically matches recalls to your medical equipment inventory. The concept seems so simple. Why did it take so long to develop? Why hasn't anyone else done it before? The short answer is the persistent problem of non-standard inventory data.

It was not long after ECRI released Alerts Tracker in 2003 that Clinical Engineers started pressing for enhancements to automate the process of searching inventory for potentially affected equipment. Automatch for Equipment is designed to do just that and the key to its functionality is data standardization.

The way it works is that clients regularly submit inventory data to ECRI Institute for standardization. By knowing what customers have on inventory and what they call it, ECRI's proprietary algorithms and systems allow Automatch to reliably detect potentially affected assets. Then Automatch lists the specific equipment assets that are potentially affected with key data such as the facility, department, and purchase date. This information is immediately available to all staff who view the alert in Alerts Tracker. Then they can help locate all of those potentially affected devices such as infusion pumps or vital signs monitors.

Thank you to all of you who visited with us at the AAMI conference this month. We were gratified to see so many of you wearing our "Stronger. Smarter. Safer" tee shirts in the conference hall, in restaurants, and in the Tampa airport. Your public show of support for ECRI Institute makes us stronger. Every time one of you shares

a medical technology problem with us, you make us smarter. And every time, you involve us in a technology challenge at your hospital, we make patient care safer and more effective, together. Please let me know if there is a technology problem that we should be working on together.

Eric Sacks  
[esacks@ecri.org](mailto:esacks@ecri.org)

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## HTF Report continued

(Continued from page 5)

Health Assembly on May 23<sup>rd</sup> by Adriana Velazquez, WHO, and President of IFMBE. This is a huge deal for the global recognition of Clinical Engineering. <http://global.icehtmc.com/>

### **Paul Coss: Part of Supporting Team for AAMI BIT Paper**

Paul Coss was part of the supporting team for the paper, 'Framework for Alarm Management Maturity'. <http://www.aami.org/alarframework>

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!

Paul Coss, RN, President, HTF  
[president@thehtf.org](mailto:president@thehtf.org)

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# The Italian Clinical Engineering Conference

**The Italian Clinical Engineering Society 16<sup>th</sup> National Conference, April 7-9, 2016 (AIIC)**

What a beautiful country and venue! Check out the pictures of this area at the conference website:

[www.convegnonazionaleaiic.it](http://www.convegnonazionaleaiic.it). The scene was Bari, Italy (think the heel of the boot on the Adriatic). Along with a great crowd of 800 clinical engineers, a very robust health technology (HT) program (some highlights of 20 major sessions, 140 speakers & 70 posters below), and another 200 vendors, ACCE was well represented by Yadin David, Elliot Sloane, Jim (& Alisa) Keller, and Tom Judd.

Ok, we're not talking about box lunches at this 3-day event. Imagine tables and platters full of many incredible gastro-nomic delights tweaked by caterers for a full hour, holding off mouth-watering participants until all was right. And did I mention the dessert table, the cannoli was to die for.

Back to the program, AIIC president Lorenzo Leogrande and international liaison (and ACCE member) Stefano Bergamasco welcomed us warmly on Day 1. AIIC wisely organized this event in a part of Italy where CE is not yet well developed; in Trieste in the northeast, for example, CE has been alive and well for over 50 years. This province of Italy called Puglia is developing its Biomedical Engineering education programs, so the university, as well as local government and Ministry of Health (MoH) officials, helped to open the proceedings. By mid-afternoon, three of us from ACCE presented in a plenary session, moderated by Stefano and (IFMBE CE Division fellow board member) Paolo Lago: myself on developing countries CE-HTM and global partnerships, Jim on emerging technologies outside of hospital care, and Yadin on CE careers beyond the hospital. Day 1 ended with a roundtable led by MoH of how health technology can assist Puglia with its critical healthcare priorities. Yes, a light dinner that night with a smaller group at a nice waterfront location was an excellent place to make new friends and ruminate on CE issues with old friends.

One focus for us on Day 2 was that ACCE was getting an opportunity to present

its international CE Award to Ledina Picari, MoH HT Unit leader, from nearby Tirana, Albania. She was deeply moved to be recognized by 800 of her regional peers. I (Tom) had the privilege of giving the award on behalf of ACCE. This took place in early afternoon at a peak attendance time thanks to Lorenzo, Stefano, and another CE leader/friend Umberto Nocco! That morning, there were several parallel sessions: Yadin and I attended "Frugal Innovation" which highlighted several global CE initiatives, such as a Telemedicine program for Africa, and other developing country work like ours. We are committed to joining this group of CEs in joint global activities. Italy has, perhaps, the second most developed health system in the world. Elliot spoke and led an important session that day, and a full 4-hour CE-IT course the next (Saturday)



Good people, Good Food. Good conference. Italy!.

morning. There was an all-conference dinner that night at a magical site on the waterfront where many friendships were deepened (see picture).

On Day 3 when Elliot was working hard, Yadin and I took to the road and saw some nearby ancient cities, hills, and views of the Adriatic. Jim and Alisa welcomed their two sons to Italy by Sunday and enjoyed a week of travel there together. Don't worry about Elliot; he also took several days of travel for work and vacation in that beautiful Mediterranean part of the world before returning. All in all, a great experience for us and ACCE.

Tom Judd

[judd.tom@gmail.com](mailto:judd.tom@gmail.com)



During the conference, Yadin David was bestowed the recognition of Honorary member of the Italian Clinical Engineers Association.

# Thank You from the Education Committee!

The Education Committee would like to thank our speakers from the **2015-2016 Webinar series**. They made it possible to have a very successful program.. We had a lot of distinguished speakers from all over the country, representing manufacturers and hospital staff. 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.



From top left: Steve Grimes, Tandi Bagian, Katrina Jacobs, Jonathan Govette, Barbara Christe, Michelle Baquie  
Second row: Patrick Bernat, Rodney Nolen, Jennifer Ott, George Mills, David Braeutigam  
Third row: Whitney Balley, Christopher Clark, Gavin O'Brien, Lynne Thomas, Don Allen

## From all of us – THANK YOU!

Education Committee co-chairs

Jennifer DeFrancesco & Christopher Falkner

Petr Kresta, President-Elect

For information on the future 2016-17 Educational Webinar series, please visit the [ACCE website](#)



AMERICAN COLLEGE OF CLINICAL ENGINEERING

## 2016 CCE written exam review webinar series

Wednesdays – August 10 through October 12, 2016  
12:00PM – 1:00PM (Eastern Time)

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

Registration Deadline: July 31, 2016

Prepare for your November CCE written exam. 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 provide an opportunity to meet other candidates to form study groups.

Email your [registration form](#) to [secretariat@accenet.org](mailto:secretariat@accenet.org)

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

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

All attendees will receive the review course presentation materials.

**Note: This course may be cancelled by ACCE if the minimum number of attendees does not register.**

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

### Journal of Clinical Engineering Subscriptions for ACCE Members

ACCE members receive a discounted subscription to the [Journal of Clinical Engineering](#) for only \$99! (Originally \$253). You must [login](#) to the ACCE website to view the code and then enter it here: <http://www.lww.com/Product/0363-8855>

## Articles Wanted for El Hospital Magazine

In 2015 ACCE signed an agreement with the Spanish language magazine “El Hospital” to produce a series of articles on technology to be published in the printed and digital version of the magazine, and on the blog on their website. El Hospital is the largest specialized publication on healthcare facilities and technology circulating among hospital directors and administrators, health professionals, and engineers in Latin America, the Caribbean and Spain.

The articles are translated and published in Spanish. They are available free of charge. All you need to do is log into the El Hospital website: [www.elhospital.com](http://www.elhospital.com). You can register at the site to get additional information.

You may also get the published articles & blogs from ACCE Website/What’s New section.

If you are interested in writing articles or blogs for the El Hospital, please contact Suly Chi at [secretariat@accenet.org](mailto:secretariat@accenet.org)

*Antonio Hernandez,  
International Committee Chair*

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

## ACCE 2016 Membership Dues Due Now

ACCE Membership Dues for January through December 2016 is due now.

To renew your 2016 membership online, please [click here](#), or mail your renewal check to: ACCE, 5200 Butler Pike, Plymouth Meeting, PA 19462

# Welcome to All the New Members

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

Name	Class	Job Title	Organization	State/ Country
Beth Townsend	Associate	Marketing	Universal Hospital Services	MN/USA
Dennis Schneider	Associate	CEO	OnPoint Marketing, Inc	NH/USA
Gregory Herr, CCE	Individual	Director of Clinical Engineering	The Christ Hospital	OH/USA
Eliezer Kotapuri, CCE	Individual	Chief Clinical Technology Officer	LifeLine	AZ/USA
Giulio Iachetti	Individual	Site Manager Project Manager	Medipass S.R.L.	Rome/Italy
Ahmed Salah Ali Elsisy	Individual	Biomedical Engineer	Saudi German Hospital-Cairo	Cairo/Egypt
Ira Lapidis	Institutional-Associate	President	Replacement Parts Industries	CA/USA
Cheryl Shaw	Institutional-Associate	Clinical Engineer	Dept. of Veterans Affairs	CT/USA
Michael W Cox	Institutional-Associate	HTM Biomedical Supervisor	Dept. of Veterans Affairs	GA/USA
Katherine Beardsley	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	IA/USA
Oluchi Ike	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	NY/USA
Surpreet Kaur	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	OH/USA
Lisa Bradley	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	MA/USA
Tocher Kellom	Institutional-Individual	Chief Biomedical Engineer	Dept. of Veterans Affairs	CA/USA
Hammam Hasan	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	NC/USA
Katrina Jacobs	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	MI/USA
Cynthia Stover, CCE	Institutional-Individual	Biomedical Engineer	Dept. of Veterans Affairs	IN/USA
Aman Sharma	Institutional-Associate	Clinical Engineer Biomedical Engineer	Dept. of Veterans Affairs	WV/USA
Nader El-Miniawi	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	NY/USA
Bimal Dhokla	Institutional-Associate	Clinical Engineer	Dept. of Veterans Affairs	CT/USA
Leslie Baggesen	Institutional-Associate	HTM Biomedical Supervisor	Dept. of Veterans Affairs	GA/USA
Arturo Delfin	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	IA/USA
Anthony Lelli, CCE	Institutional-Individual	Chief, Biomedical Engineering	Dept. of Veterans Affairs	NY/USA
Woody Cortner	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	WA/USA

New member list continued on page 9

# New Members continued

Name	Class	Job Title	Organization	State/ Country
George Scarlatis	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	IN/USA
Coleman McCarthy, CCE	Institutional-Individual	Chief Biomedical Engineer	Dept. of Veterans Affairs	IA/USA
Gill M. Pina	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	TN/USA
Hillary Groff	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	AR/USA
Michael C. Johnson CCE	Institutional-Individual	Biomedical Engineer	Dept. of Veterans Affairs	MN/USA
Dylan Vaughn	Institutional-Associate	Clinical Engineer Biomedical Engineer	Dept. of Veterans Affairs	IN/USA
Robert A. Pastorello, CCE	Institutional-Individual	Chief, Biomedical Engineering	Dept. of Veterans Affairs	FL/USA
Tiffany Wang	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	CA/USA
Jennifer A. Boudreaux	Institutional-Associate	Clinical Engineer Biomedical Engineer	Dept. of Veterans Affairs	LA/USA
Gary Benson	Institutional-Associate	Biomedical Engineering Supervisor	Dept. of Veterans Affairs	NE/USA
Larry Carlson	Institutional-Associate	IT Project Manager	Dept. of Veterans Affairs	CT/USA
Nicholas J. Summary	Institutional-Associate	HTM Biomedical Supervisor	Dept. of Veterans Affairs	GA/USA
Uriel Gomez	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	IA/USA
Michael McDonald, CCE	Institutional-Individual	Chief, Biomedical Engineering	Dept. of Veterans Affairs	NY/USA
Robert C Hamilton	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	KS/USA
Erin Williams	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	IL/USA
Arleen Thukrai	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	CA/USA
Elyssa Polomski	Institutional-Associate	Chief Biomedical Engineer	Dept. of Veterans Affairs	WV/USA
Tucker J. Scherger	Institutional-Associate	Biomedical Engineer	Dept. of Veterans Affairs	IA/USA
Michael McDonald	Institutional-Individual	Chief Biomedical Engineer	Dept of Veterans Affairs ,	WA/USA
Matthew Savoie, CCE,	Institutional-Individual	Biomedical Engineer	Dept of Veterans Affairs ,	WI/USA
Eliezer Kotapuri, CCE	Individual	Chief Clinical Technology Officer	LifeLine Clinical Engineering Solutions	PA/USA

## Congratulations to the following members - upgraded to Individual Member status:

Britton McCaskill	Individual	Biomedical Engineer	Dept. of Veterans Affairs	NC/USA
Stephen Kulju	Individual	Biomedical Engineer	Dept. of Veterans Affairs	IA/USA

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# AAMI Update

## Clinical Engineers Can't 'Surrender' to Technology, Says AAMI Conference Speaker

As more medical devices are connected to networks, become more closely integrated, and work with greater autonomy, organizations need to be proactive in addressing security risks—both from hackers who intentionally want to cause harm and from the automated systems themselves.

These were the overarching themes of a symposium presented by the American College for Clinical Engineering at the AAMI 2016 Conference & Expo in Tampa, FL.

"This isn't a perfect world, and you can't just surrender yourself to the technology. We are still in charge. It's still our responsibility," said keynote speaker Elliot Sloane, president of the Center for Healthcare Information Research and Policy.

The future may eventually include "sentient hospitals" that integrate patient safety monitoring into the building itself, like the air conditioning thermostat, Sloane said. But he cautioned against an overreliance on automation, where a nurse could spend more time monitoring devices than patients.

Without human intervention, automation can run amok—an operating system doesn't understand that there's a patient attached to it when it shuts down for a Windows upgrade.

"The computer is an idiot. Don't imbue intelligence into a computer," Sloane said. "We have to bring the heavy thinking, look at a patient and see that they look worse... The computer doesn't give a damn about outcomes."

Speaker Dale Nordenberg, executive director of the Medical Device Innovation, Safety, and Security Consortium, called the issue of medical device cybersecurity a "public health challenge" with risks that are dangerously unknown and understudied for their scope.

"There are one billion patient encounters per year in the United States. With 10 exposures to digitally enabled and networked medical devices per encounter, that's 10 billion exposures per year—100 billion over

10 years," he said. "I can't think of another public healthcare challenge where we have so little data. We don't really know what's going on with these devices, but also what's going on between the device and the patients."

Nordenberg compared the evolving attitude toward digital security to the trials of 19th century physician Ignaz Semmelweis, a trailblazing proponent of surgical handwashing. Semmelweis was dismissed by his peers and died in an asylum in 1865. Will today's leaders make a similar mistake?

"The healthcare systems say, 'We can't assess devices, we're too busy.' That's like me saying that I'm not going to take vital signs today," Nordenberg said. "How do we not do assessments on devices, monitor what we're doing, or patch devices?"

An AAMI standards committee, which also met during the conference, is working on an update to formalize the design and safety requirements for interconnected devices.

## Clinical Engineering Leader Says Equipment Management Must Focus on Impact

Historically, the effectiveness of a medical equipment management program (MEMP) has been measured by focusing on the ability to answer the questions asked by accreditation or regulatory surveyors. According to David M. Dickey, corporate director of McLaren Clinical Engineering Services (MCES) with McLaren Health Care in Flint, MI, although questions such as "What are your preventive maintenance (PM) completion rates?" and "How do you find missing equipment?" are important, they are not by themselves measures of MEMP effectiveness.

Dickey said healthcare technology management (HTM) professionals can and should do better with their equipment management programs.

"HTM has yet to define and agree upon standard measures for quantifying and reporting the quality and effectiveness of an MEMP," said Dickey during a presentation given at the 32nd Annual Conference on Clinical Engineering Productivity and Cost Effectiveness, held on June 3 prior to the start of the AAMI Annual Conference & Expo.

Simply reporting on the number of PM inspections done on time, according to Dick-

ey, does not measure the quality of the inspections.

"How do you know if the scheduled PM was effective?" asked Dickey. "Did it prevent anything, such as a future unscheduled failure?"

In Dickey's opinion, MEMP effectiveness would be more appropriately measured by determining: "How effective was (or what was the impact of) X in maximizing the safety, operational status, and availability of medical equipment for the use in delivering patient care?"—where X is the equipment inspection program, equipment user education program, or repairs performed on broken or damaged equipment.

The effectiveness of the "X" action, therefore, should be determined based on whether it minimized or prevented patient injury or death due to malfunction or improper use of the medical equipment managed by the MEMP, as well as whether it minimized or prevented any unforeseen extension in a patient's length of stay (LOS).

Examples of effectiveness measures provided by Dickey included quantifying how a device repair program minimized patient injury or death and how a staff education program prevented increases in patient LOS.

"The best answer to the question on the effectiveness of an MEMP may lie in one key fact: At least for our program, we have not had a patient injury that was caused by, or had a contribution from, any component of our MEMP," Dickey said.

Dickey addressed these concepts in greater detail in a three-part series of articles that appeared in the September/October 2015, November/December 2015, and January/February 2016 issues of *BI&T (Biomedical Instrumentation & Technology)*, AAMI's peer-reviewed journal.

## Hybrid HTM/IT Role Could Be Bridge to the Future

The healthcare technology management (HTM) field is evolving rapidly, driven primarily by the integration of clinical engineering and information technology (IT), including the advent of electronic medical records. Professionals who can master the burgeoning hybrid HTM/IT technical skills required for the career have tremendous

*(Continued on page 13)*

# AAMI continued

(Continued from page 12)

opportunity for growth.

During a symposium held as part of AAMI 2016, attendees discussed the increasing importance of building a bridge between HTM and IT, and worked to define the attributes and identify resources that will allow individuals or teams to be successful in what is emerging as a hybrid role. The symposium was presented by Medtronic and moderated by Ken Maddock, a longtime healthcare technology executive and member of the AAMI Board of Directors. Maddock has been leading the charge of AAMI's HTM/IT Bridge Role Task Force, which was established in 2015 to improve the relationship between HTM and IT, as well as to ensure that HTM professionals are prepared for this emerging role.

Citing the overriding reason for an HTM/IT bridge role, Maddock pointed to the fact that the vast majority of medical devices are either networked or on their way to being networked. In addition, equipment has moved away from propri-

etary networks to standard network hardware.

"IT and the business are looking for the help of HTM," said Maddock. "This is a chance for HTM to solidify our value to the organization while meeting a big need."

HTM professionals who are able to navigate the IT environment from infrastructure, application, and process perspectives will drive the success of effective projects with IT engineers and clinical analysts—with the same being true in reverse for IT staff. This willingness to "walk in each other's shoes" was a theme that surfaced

during the symposium.

The HTM/IT Bridge Role Task Force is developing a skills checklist that will help guide HTM professionals through the learning process, as well as a communication plan focusing on bridge-building resources. These tools are expected to be completed by this fall.

"There are lots of people in the country who have stumbled into being the IT expert in their HTM department. We're trying to formalize it a bit," Maddock said.

AAMI staff



## ACCE News Articles Wanted

ACCE News is always looking for newsworthy articles and relevant opinions/columns of interest to the Clinical Engineering community. Articles should be previously unpublished and 500-1,500 words in length. If you have an article, or wish to discuss article ideas, please contact one of the newsletter editors. Photos of recent clinical engineering related events are also welcome.

Thanks

Ted Cohen, co-editor ACCE News  
[editor@accenet.org](mailto:editor@accenet.org)

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# View from the Penalty Box

In the past few months, here in New England, there have been numerous stories in the press on healthcare costs and what is being done to hold prices down. Since the politicians have gotten involved I foresee a clear and empty road ahead with nothing getting done and no one will accept any responsibility for things not getting done. I am not sure if the inaction is a result of this election cycle or no one has the courage to step forward and lead the pack to solutions. I often think about a quote of Winston Churchill's that went "Courage is what it takes to stand up and speak; courage is also what it takes to sit down and listen". We, as a profession, need to speak out on what our ideas are on cost reduction and better healthcare. As a profession we have the knowledge but do we have the courage? Are we willing to speak or write so others can see and respond to our thoughts? Nothing ever gets done without someone taking a lead position. This election cycle proves that the golden rule, political version, is in place and in play. That golden rule is "Those who have the gold make the rules". Plus they get to call everyone who might disagree with them stupid or corrupt or some other schoolyard name. Well we could be headed for more trouble.

It is very doubtful that hospitals know what their actual costs are for a procedure or service. One large hospital in Boston charges about \$18,000 for a simple birth and another smaller hospital about 30 miles away charges \$8,000. Take a guess on which hospital has a better record for results. If you picked the big one you are wrong. Like so many other areas of business, costs does not always correspond to quality of the products or results. One time some years back we worked out the cost of a simple chest x-ray. We included the cost of the film, water, electricity, and film storage, chemicals for the developer, service costs, and cost of space, personnel and the average number of films before they got a "keeper".

The cost was computed at \$73.68. We did the same work up for a CT and came out with a cost of \$39.31 per image. Then we looked at the price the hospital passed on to Medicare and got a real shock. The hospital would bill Medicare \$56.07 for the x-ray and get a \$37.20 payment. For the CT Medicare was billed \$415.00 and the hospital got a payment of \$277.44. I guess that Medicare did not keep up with changes in technology that reduces costs as they seemed to have reacted with "new technology equals higher costs", even if totally wrong. We in clinical engineering need to bring this information to the attention of policy makers and our hospital administration so everyone is on the same page where new technology, in most cases, gives better patient results for less costs. They have to tell the physicians that the old technology has to go as the new technology is less expensive, gives better results and often requires much less service. While the less service may

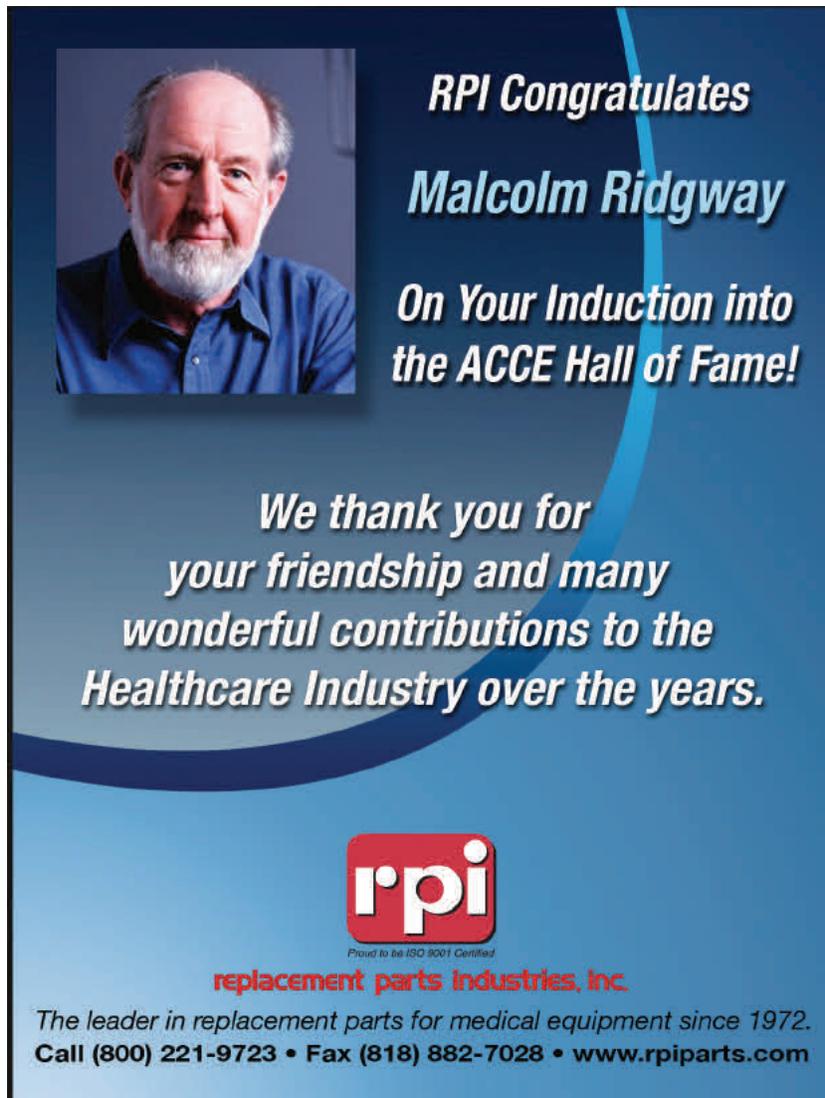
impact our budgets, we will have time to look closely at other technology that may be costing a lot of money and develop plans to replace that technology with new.

When the ACCE was starting out several members of ACCE served on various FDA Advisory Panels, and FDA employees were members of ACCE, with a lot of information moving back and forth. On June 5, 2016, I looked at our membership listing in our website and found not one person on the list that had the FDA as their employer. How did we lose all the members that would and could give advice on what was going on? Also nowhere was I able to find the names of any ACCE members who are still on any of the FDA advisory panels. As a profession we need to re-establish that connection. They also used to have a booth at the AAMI convention and they are not listed this year. Shouldn't we have direct communication with the FDA? We also need to get more input into CMS.

In closing I would like to thank Malcolm Ridgway as the newest member of the ACCE Hall of Fame for all his leadership and guidance for us youngsters and also to George Johnston who recently celebrated in 87<sup>th</sup> birthday for all of his support over the years.

Have a great summer, stay healthy, active and involved with our profession.

Dave Harrington  
[Dave@sbtech.com](mailto:Dave@sbtech.com)



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# Special Report: Body of Knowledge Survey Results

The 2015 ACCE Body of Knowledge Survey had a great response from the Healthcare Technology Management (HTM) community! The Body of Knowledge (BoK) Survey closed in the fall of 2015, and the results have been compiled and analyzed by ACCE to be shared with the field. The purpose of the BoK Survey was to determine the current scope of practice and knowledge base for Clinical Engineers in their daily work. The results will be used by the U.S. Board of Examiners for Clinical Engineering Certification in updating the Clinical Engineering Certification exam to ensure the certification exam closely matches the body of knowledge Clinical Engineers need to function in their jobs. In addition, the demographic data collected from the survey will be useful for ACCE to ensure the services they provide are beneficial to their members and meet the needs of the profession.

The survey was sent out primarily via email to Clinical Engineers and the Healthcare Technology Management community requesting participation. We received a total of 472 responses, which is a 9% increase in the response rate from the last BOK survey sent out in 2010. The responses to the survey were analyzed in two groups: all re-

spondents and only Clinical Engineers. We defined a Clinical Engineer (CE) response as one that selected “Healthcare Technology Management” as the primary nature of their position and selected either “Clinical Engineer” or “Healthcare Technology Manager” as the current profession. The free text responses for any of the “Other” category questions were reviewed and placed in one of the main categories for that question if possible. If the responses remaining in the “Other” category showed no trend, they were deemed not significant to report.

## DEMOGRAPHICS:

Among the 352 survey respondents that provided their Demographic information, about half (49%) of respondents were from the US, a whopping 28% from Brazil, followed by Mexico (7%), Canada (3%) and 24 other countries (0-1% each). Approximately 58% of respondents described their current employer as a hospital/clinic or health system, while the rest were spread among other categories (9% from a Government Agency, 8% from an Independent Service Organization, 5% from Academia, etc.). Approximately 57% of respondents described the primary nature of their position as Healthcare Technology Management. Of the remaining respondents, the top selections were Professional Support

(10%), Consulting (8%), Project Management (7%) and Service Delivery (7%). About 47% of respondents described their profession as Clinical Engineer, 24% as Healthcare Technology Manager, 12% Biomedical Equipment Technicians, 6% Clinical Systems Engineer, and 11% Other. As described above, responses from these two questions were used to filter the results between “All respondents” and “CE only” responses.

There were also several interesting demographic responses that were not used to filter the results but are interesting to note. A notable number of respondents indicated having certifications in CCE (119 respondents), a PE (71), CBET (48) and EIT (33), and over 50 other types of certifications. Respondents ranged evenly amongst the 5 different groups for years of experience (between 0-3, 4-9, 10-19, 20-29, and 30+ years of experience in their field). A large percentage (48%) of respondents indicated having a 6-year degree (equivalent to a Master’s degree in the U.S.), 30% a 4-year degree, 8% a 2-year degree, 7% an 8-year degree, 4% High School Diploma and 2% Other.

## KNOWLEDGE:

Respondents were asked to assess background knowledge required to successfully complete their work by indicating the level of importance of 28 given tasks in relation to their position. Importance was deemed a measure of both how *critical* the knowledge is to their job and how *frequently* this knowledge is used during their daily tasks. Respondents were given a range of importance of minor, moderate or high importance for each of the 28 categories. To convert these responses to quantitative data, each minor, moderate or high response was assigned a 1, 2, or 3, respectively. Each of these were then averaged and sorted from highest to lowest, with the highest number being the most important background knowledge overall. These results were totaled for all respondents (322 total that answered this question) and filtered for CE only (161 respondents). These results are shown in Table 1.

The five most important categories of

*(Continued on page 16)*

KNOWLEDGE CATEGORY			
All (322 Respondents)		CE Only (161 Respondents)	
Knowledge Category	Rank	Knowledge	Rank
Regulatory Standards/Codes	1	Regulatory Standards/Codes	1
Physiological Monitoring	2	Physiological Monitoring	2
General Medical / Nursing Equipment	3	General Medical / Nursing Equipment	3
Surgical Equipment	4	Surgical Equipment	4
Medical Device Integration	5	Medical Device Integration	5
Anesthesia	6	Anesthesia	6
Presentation Skills	7	Presentation Skills	7
Respiratory Therapy	8	Respiratory Therapy	8
Medical Imaging	9	Computers, Networking, Information Technology	9
Computers, Networking, Information Technology	10	Medical Imaging	10

Table 1: Ranking of Knowledge Categories

# Special Report: Body of Knowledge Survey continued

(Continued from page 15)

knowledge in relation to the function of their job were found to be Regulatory Standards/Codes, Physiological Monitoring, and General Medical/Nursing Equipment, Surgical Equipment and Medical Device Integration. Interestingly, results between All Respondents and CE only were very similar, with the only difference being Computers, Networking, and Information Technology moving up one rank for CE only respondents (switching places with Medical Imaging). In comparing these categories to the 2010 data, the overall categories were similar, but two new categories, Regulatory Standards/Codes and Medical Device Integration, which may have been added since 2010, were identified as being very important knowledge for daily tasks. This may indicate a shift in the profession towards these knowledge categories across all fields.

## CATEGORIES OF WORK DATA:

For this section of the survey, respondents were asked to identify the percent-

age of time they spent on each of the following major categories of work: Technology Management; Service Delivery Management; Product Development, Testing, Evaluation, and Modification; Information Technology (IT) / Telecommunications; Education of Others; Facilities Management; Risk Management / Safety; General Management; and Other. There were a total of 322 responses to these questions, and of that, 161 were from Clinical Engineers. The results for all respondents and for CE only are shown in Table 2.

Looking at the data from most time spent to least time spent, the order of the work categories in both sets of results were almost the same. The only difference was for all respondents, the least time was spent in Facilities Management and for CE only, the least time was spent in Product Development. Technology Management was the top category, with all respondents spending 27.9% of their time and CE's spending 31.7% of their time in this category. In comparing this data to the 2010 data, a major difference for all respondents was that Technology Management rose to the top of the list from 21.8% to 27.9%, and Service Delivery Management fell to

second dropping from 30.3% to 21.6%. Also from 2010 for CE only the major changes were that Service Delivery Management stayed in second place but increased in percentage from 16.8% to 20.7%, and General Management stayed in third place but increased from 10.7% to 14.6%. An interesting result to note from the 2015 data is that when we looked at CE's only in the USA, the amount of time spent in Information Technology (IT) / Telecommunications jumped from 7.9% for all countries to 10.2% for just USA. This jump is indicative of the increasing number of networked medical equipment that Clinical Engineers in the field have to support and maintain in the USA.

## RESPONSIBILITIES DATA:

For the survey section on responsibilities, each category of work was divided into specific topics or skills to identify the types of activities respondents were responsible for performing in each of the categories. Respondents were asked to indicate the level of importance in their job for each topic or skill listed. Importance was defined in the survey as the measure of both how *critical* the knowledge is to doing your job and how *frequently* you utilize this knowledge. The options respondents could select for each topic or skill were No, Minor, Moderate, or High. In order to analyze the results, we assigned a numeric score of 0, 1, 2, and 3 for each option respectively, and then we calculated the average score for each topic. The results of the top two or three topics for each work category are shown in Table 3.

For the two categories of work where respondents spent about 50% of their time (Technology Management and Service Delivery Management), the most important activities were Technology Assessment, Product Selection / Vendor Selection, Usability / Compatibility Assessment, Service Contract Management, Equipment Performance Testing, and Equipment Repair and Maintenance. Also important to note, the topic with the highest score out of all the work categories was Patient Safety, which confirms that in the Healthcare Technology Management industry, Patient Safety is paramount.

PERCENT TIME SPENT IN WORK CATEGORIES			
All (322 Respondents)		CE Only (161 Respondents)	
Categories of Work	Time Spent (Avg%)		Time Spent (Avg%)
Technology Management	27.9%	Technology Management	31.7%
Service Delivery Management	21.6%	Service Delivery Management	20.7%
General Management	13.0%	General Management	14.6%
Risk Management / Safety	12.1%	Risk Management / Safety	11.2%
Education of Others	11.1%	Education of Others	8.5%
Information Technology (IT) / Telecommunications	8.9%	Information Technology (IT) / Telecommunications	*7.9%
Product Development, Testing, Evaluation, and Modification	8.0%	Facilities Management	6.7%
Facilities Management	7.0%	Product Development, Testing, Evaluation, and Modification	4.9%
		* Percent Changes to 10.2% for USA Only CE	

Table 2: Percent of time respondents spent in the major categories of work

(Continued on page 17)

# Special Report: Body of Knowledge Survey continued

(Continued from page 16)

In analyzing the results of this survey we did find it difficult to distinguish between the professions of Healthcare Technology Manager, Clinical Engineer, and Clinical Systems Engineer due to commonalities in the definitions. This made it challenging to determine what to include when we separated the data into Clinical Engineering only. We felt that most people taking the Clinical Engineering Certification exam would be in Healthcare Technology Management versus Consulting, Project Management, Service Delivery, etc, so we decided to only look at that field. We also felt that most Healthcare Technology Managers are Clinical Engineers, so we decided to include both the Clinical Engineer and Healthcare Technology Manager Professions.

The most surprising, but exciting find from the data was the large percent of respondents from Brazil. We received 97 responses from Brazil comprising 28% of the total! This is more than half of the number of responses we received from people in the USA (174 responses). It is great to see that this survey is reaching so many people in other countries; their worldwide perspective on healthcare technology management is invaluable to the growth of our field.

When we reviewed the article written about the 2010 BOK survey results, we were surprised to find that not much has changed with our profession in the last 5 years. There were slight changes in the rankings of the knowledge data from 2010 to 2015, but the current top ten knowledge categories were on the top ten list in 2010, with the exception of Regulatory Standards/Codes and Medical Device

Integration. These two categories pushed out categories from 2010 like Electronics, Medical Terminology, and Management Theory. For the work categories, Technology Management rose to the top over Service Delivery Management for all respondents, matching the CE only results, but it was the difference that we did not see that surprised us most. We expected that from 2010 to 2015 there would be a large percentage increase in Information Technology (IT) / Telecommunications, since so much more medical equipment is networked now and there is an emphasis on IT and networking in the industry. The results of the survey, however, did not show that increase when we looked at data from all countries. It was only when we looked at just the USA Clinical Engineer responses that we saw the percent jump to 10.2% from 8% in 2010 and 7.9% in 2015 with all countries. This difference may be because the USA is ahead of other countries when it comes to technology and networking medical equipment, or maybe the HTM field in the USA has placed more focus on this subject than other countries. Overall these results show that the HTM field is evolving slightly, but the most important aspects of our profession remain constant.

This survey has collected a substantial amount of data and provided valuable, current information about the scope of practice and knowledge in the Healthcare Technology Management community and specifically in the Clinical Engineering profession. The U.S. Board of Examiners for Clinical Engineering Certification will examine these survey results and if needed update the scope of the Clinical Engineering Certification exam to better match the attributes of the Clinical Engineering profession today. Thank you to everyone who participated in this survey; your responses have brought beneficial insight and perspective into what we do in Healthcare Technology Management!

*Arif Subhan*

*Body of Knowledge Committee Chair*

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

*Katherine Navarro*

*Sarah Brockway*

*Body of Knowledge Committee members*

IMPORTANCE OF ACTIVITIES IN WORK CATEGORIES		
Categories of Work	ACTIVITY	Importance (Avg)
Technology Management	Technology Assessment	3.4
	Product Selection/Vendor Selection	3.1
	Usability/Compatibility Assessment	3.1
Service Delivery Management	Service Contract Management	2.1
	Equipment Performance Testing	2.1
	Equipment Repair and Maintenance	2.1
Product Development, Testing, Evaluation, and Modification	Regulatory Compliance Activities	2.7
	Documentation Development/Management	2.7
Information Technology (IT) / Telecommunications	Installation Management	2.9
	Integration Management (Including Device & EMR Integration)	2.8
Education of Others	Technician Education	3.3
	Engineering Education	3.3
Facilities Management	Building Plan Review	2.4
	Facility Emergency Preparedness Activities	2.3
	Emergency Electrical Power	2.3
Risk Management / Safety	Patient Safety	3.8
	Risk Management	3.3
	Product Safety/Hazard Alerts/Recalls	3.2
General Management	Staff Skills/Competency Assessment	3.1
	Performance Improvement/CQI	3.1

Table 3: Activities of highest importance in each category of work

# Forging Relationships Across the Pacific: Japan

This year I had the opportunity to be the first ACCE member to ever participate in a Congress of the Japan Association for Clinical Engineers (JACE) in Japan. Tom Judd had initiated contact with JACE a few years back at the AAMI conferences. His effort led to a closer relationship between JACE and ACCE, and subsequently to an invitation to present at the 26<sup>th</sup> Congress of JACE, May 14-15, 2016, in Kyoto.

Kyoto is well known throughout the world for its classical beauty, and as an ancient city and former imperial capital of Japan it contains approximately one quarter of the national historical treasures. I saw magnificent temples and monuments as we made our way to the Kyoto International Conference Center where the JACE Congress took place. The conference center itself is an impressive modern building surrounded by green hills and beautiful gardens and ponds. The venue is a unique blend of traditional Japanese surroundings and modern architecture that housed over 4,000 people who attended the event. To round out the experience, the organizers did a great job and the process to get information, register, and participate was efficient and friendly.

The program for the 26<sup>th</sup> Congress featured best practices discussions about the future of Clinical Engineering in Japan. The invited paper I delivered was in the session “CE and HTM Global Best Practices and Why it is Important to JACE.” Additionally, there was a visible presence of sessions on disaster preparedness and response, some specifically related to the medical community response during and after the Great East Japan Earthquake. Further, a good portion of the conference dealt with medical subjects related to the delivery of care in areas like respiratory, dialysis, surgery, endoscopy, and other related specialties. This part of the program reflects subjects that are about providing patient care, and are not included in traditional clinical engineering conferences in the US. Providing patient care with the instruments they are responsible to service constitutes one of the differences between the Body of Knowledge (BoK) and practice of Clinical Engineering in Japan, in contrast with the BoK and practice in the United States.

In Japan Clinical Engineering as a profession is responsible for the operation and maintenance of life support systems under the direction of a physician. Clinical Engineers, since 1988, are required to pass a national exam before they can practice. Because CEs in Japan operate and service equipment, they may participate in two conferences to stay abreast of what is happening in the US in their field. For example a CE whose specialty is in respiratory therapy equipment may attend two conferences, AAMI and ARRC (American Association for Respiratory Care).

Back in the US, and almost three weeks after the Kyoto Congress, Tom Judd and I had the opportunity to meet one of my hosts in Japan, Jun Yoshioka, who came to Tampa to attend AAMI and to chair the session *Clinical Engineers and Biomedical Engineers in Japan and the U.S. Differences, Similarities, and How They Are Tackling Challenges*. Tom and I joined three other speakers to present our experiences about the similarities, differences, and challenges of clinical engineering professions in our respective countries. We shared success factors of clinical engineering organizations in the US for consideration of similar organizations in other countries.

After our session and during the AAMI Conference the representatives from JACE, Tom, and I had the opportunity to discuss further cooperation and more formal collaboration agreements between ACCE and JACE. We briefed Antonio Hernandez, Chair of ACCE International Committee, and the two organizations are following up with further communication at their leadership level.

I want to close with a note of gratitude to the Japanese team who hosted me in Kyoto, especially Jun, who made my visit very pleasant, and Atzuko Kakehi who arranged field trips for me to the Hyoho College of Medicine Hospital and Osaka University Hospital. She was also my guide and able interpreter. She masterfully interpreted the conversations that professor Kohei Tanaka and his team from the University of Tokyo and I had about ACCE advanced clinical engineering workshops in Japan.

At the end I believe that in the collaboration between JACE and ACCE there are plenty of opportunities to learn from each other and in the process we will improve patient safety, enhance the health for our respective communities and further promote the international clinical engineering practice.

Mario Castaneda

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Left to right: Jun Yoshioka, IEC Chair of JACE, Mario Castaneda; Tadayuki Kawasaki, President of JACE; Shuichi Nasuno, Secretary-General of JACE; and Shoji Okita, JACE 2016 Congress Event Chair; at the 26th Japan Association for Clinical Engineers Congress in Kyoto, Japan.



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# ACCE

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## ACCE Calendar

**7/1/2016- 7/16/2016:** 2016 ACCE Officers and Board of Directors election

**7/9/2016:** Deadline for 2016 CCE exam applications for applicants outside US & Canada

**7/20/2016:** Deadline to submit articles/ads for July/August Newsletter

**7/27/16:** CE-IT Virtual Town Hall Meeting: Medical Image Interoperability

**7/31/16:** Deadline to register for CCE Review Webinar series

**8/6/16:** Deadline for 2016 CCE exam applications for US and Canada applicants

**8/10/16:** CCE Review Webinar, session#1

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