ACCE News

Newsletter of the American College of Clinical Engineering

March—April 2013 Volume 23 Issue 2

Check out photos of ACCE at HIMSS2013!

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In this Issue:

President's Message

Here's something that I overheard at this year's HIMSS conference. "That was the best session that I attended the whole conference." I thought that was pretty impressive given that the session being complimented took place near the end of the conference, and it had some real heavy hitters to compete with. They included President Bill Clinton; Dr. Connie Mariano, Clinton's physician during his presidency; presidential advisor and political analyst Paul Begala; and Dr. Farzad Mostshari, National Coordinator for Health IT. The nice compliment referred to ACCE's sponsored session on integration of infusion pumps. Our two presenters were Jennifer Jackson, Past President of ACCE, and Erin Sparnon from ECRI Institute. I don't know what other sessions the attendee viewed and therefore what Jennifer's and Erin's session was being compared to, but I'm sure that they were happy for the feedback.

In addition to the nice feedback on the pump integration session, I thought that HIMSS was a great conference for ACCE. It started off with a well-attended Clinical Engineering and IT Leadership Symposium, which ACCE co-sponsored. The symposium title was "Executing your Medical Devices Integration Roadmap". Attendees heard detailed examples of successful projects to integrate various medical devices with information systems. It was impressive to learn about the amount of work that goes into these integration projects and how collaboration between clinicians, information technology, and clinical engineering is a must if they are to be successful.

The need for testing was emphasized by several of the symposium presenters and particularly how important clinical engineering is to this effort. Clinical engineering's responsibilities can include designing and building a test lab, development of testing protocols, conducting and managing testing (either before go-live or after changes like from software upgrades), and documentation of test results. It was pointed out that testing needs to be considered during the up-front stages of integration projects and that clinical engineering can be a key player when selling the need for testing support (e.g., justifying the cost to build a test lab) to hospital executives.

The symposium was followed by the HIMSS opening reception. ACCE members enjoyed networking with fellow ACCE members and other HIMSS attendees. The reception provided a great opportunity for ACCE members to share their knowledge of our profession and to talk up ACCE's important contribution to the profession with HIMSS attendees who were not familiar with clinical engineering..

Several members of ACCE's leadership had a meeting at the end of the opening reception with Kurt Finke, Director of the VA's Office of Healthcare Technology Management program along with about ten of VA's clinical engineers. VA has an institutional membership with ACCE, and all of its clinical engineers are entitled to apply for individual membership with ACCE as part of their institutional membership. The meeting was used share information about ACCE with the VA's clinical engineers and to encourage them to participate in some of our many activities. The VA has done an excellent job of hiring bright and motivated clinical engineers into its healthcare technology management

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President's Message

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program. For those VA clinical engineers who are new to ACCE, we look forward to your contribution to our organization. I am sure that you will have important knowledge to share (e.g., as audio conference presenters, in ACCE Newsletter articles, or during networking discussions with fellow members).

On the second day of the HIMSS conference ACCE co-hosted the CE-IT reception with HIMSS. The reception provided another opportunity to network with ACCE members and other HIMSS attendees and to share information about our organization. We also presented three of ACCE's 2013 Advocacy Awards. They included the Challenge Award presented to Nico Arcino and Shawn Jackman, the Tom O'Dea Advocacy Award presented to ACCE President-Elect Paul Sherman, and second place for the Student Paper Award to Mariana Hu. Congratulations to our award winners. Please check out this link on ACCE's website for the full list of this year's 2013 Advocacy Awards. We expect to formally present the rest of the awards at our reception during the AAMI conference in Long Beach this June.

The CE-IT/ACCE reception was generously sponsored by Awarepoint. Matt Perkins, Awarepoint's Chief Technology Officer provided a short presentation during the reception. He covered Awarepoint's real time location systems solutions including temperature monitoring, enterprise-wide asset management, automated workflow, and device location. He also shared case examples from hospitals using Awarepoint solutions. Please visit Awarepoints' website at www.awarepoint.com if you would like more information on its products and services. ACCE appreciates Awarepoint's support.

I had a great evening on the third day of the HIMSS conference. I was honored to be the formal presenter of the ACCE-HIMSS Excellence in CE-IT Synergies Award at the HIMSS Awards Banquet. I like to describe the banquet as the HIMSS version of the Oscar's. The banquet was held in a beautiful ballroom in the New Orleans Hyatt Regency hotel. All of the awardees and presenters were required to show up 90 minutes before the banquet for a dress rehearsal. This was my first opportunity to use the dual screen teleprompters typically seen at political speeches. I was a little nervous about tripping like Jennifer Lawrence on my way up to the stage to present the award and then losing my place on the teleprompters. But it all turned out fine. And I was extremely pleased to present the award to a very deserving Paul Frisch, Ph.D.

In case you missed my comments on the award in my last President's ACCE article in ACCE News, here's a review. The award recognizes individuals who have best demonstrated leadership in promoting or implementing significant synergies between the clinical engineering and information technology professions. This year's award winner, Paul Frisch, is a faculty member and Chief of Biomedical Engineering in the Department of Medical Physics at Memorial Sloan Kettering Cancer Center in New York, and a visiting professor at Binghamton University. One of Paul's research interests has been the transition of clinical devices from stand-alone to networked systems sharing and distributing information between clinical applications and devices. He has extensively researched how these devices have also moved to expand their functionality to use wireless technologies as medium for conveying this critical information. I recently got to see some of Paul's accomplishments first hand during a visit to his hospital. Paul and his team have been gathering real-time infusion pump utilization data using their RTLS system. Paul's data shows, on a month-by-month basis, the percent of time their pumps are actually delivering fluids to patients. This will be an excellent tool for his hospital to use to establish a realistic inventory of infusion pumps and is likely to generate significant savings. Also, Paul established the Intelligent Hospital Pavilion at the HIMSS conference. It was one of the busiest places that I attended in the whole exhibit hall. Congratulations on your award Paul!

One of the highlights of this year's HIMSS conference was President Bill Clinton's keynote address. There must have been 9,000 people jammed into the keynote hall. I heard that there were hundreds of other attendees in spill-over rooms. I showed up in the keynote hall forty five minutes before Clinton was scheduled to present and I was lucky to get a seat. We got to hear Clinton not speculate on the potential for Hillary to run for President in 2016; comment on the economy and how it's impacted by the huge costs of healthcare; and point to the challenges and opportunities that healthcare professionals, along with those HIT, have in helping to solve healthcare's problems.

Jennifer Jackson and Erin Sparnon presented their session on infusion pump integration on the last day of the conference. It was a nice way to wrap up. They provided very detailed and practical guidance on assessing a facility's technological readiness for infusion pump integration, reviewing best practices for communicating the infrastructure requirements for successful integration to clinical and IT departments, and on how to assemble and lead a project team to

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President's Message

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most effectively plan for and oversee a pump integration project.

I'd like to wrap up by thanking all of the ACCE volunteers who helped with activities during the HIMSS conference. ACCE Secretary of the Board, Pratyusha Mattegunta, did an excellent job organizing the volunteers for our booth. Our volunteers typically spent many hours of their valuable HIMSS time manning our booth and helping to raise awareness about ACCE and our profession. Thank you so much for your dedication. Pratyusha and ACCE Secretariat Suly Chi organized a great CE-IT reception. It made a really nice impression on the ACCE members and prospective members who attended. We'll have a similar set of activities at the upcoming AAMI conference. Please contact Pratyusha if you'd like to help out with any of them. She can be reached at secretary@accenet.org. We'd appreciate any help that you can provide.

Finally, on April 11, 2013 I will be representing ACCE and ECRI Institute during the Association of Italian Clinical Engineer's annual meeting in Naples, Italy. I will be presenting on the convergence of medical devices and information technology and its impact on clinical engineering – from a US perspective. Feel free to send me any of your perspectives on this topic. I'd be happy to consider including them in my presentation. I can be reached at president@accenet.org. I'm sure I'll be writing about my Italian experiences in my next President's article for ACCE News. Chaio!

Jim Keller
president@accenet.org

ACCE News

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Secretary's Report

With efforts from the Advocacy Committee, Tom Judd announced the award winners for 2013 ACCE Awards!

The ACCE Board, with help from many volunteers and ACCE members, was very busy with ACCE activities at HIMSS this year. HIMSS 13 was held in New Orleans – and ACCE's activities included the joint CE-IT reception, ACCE booth, ACCE Reception and the Awards function to honor our award recipients for this year.

The all-day Clinical Engineering & IT Leadership Symposium, on Sunday, March 4, themed "Executing your Medical Device Integration Roadmap" had a huge attendance and was a successful session. The CE -IT / ACCE Awards Reception on Monday night also served as a great networking opportunity for the community and three of the awards were also given out during the reception, along with a token of appreciation for our past Board members – Izabella A. Gieras and L. Michael Fraai. The raffle winners at the reception were very happy to win some cool ACCE merchandise – caps, T-shirts, and lapel pins!

Paul H. Frisch, PhD, FHIMSS, received the 2012 ACCE-HIMSS Excellence in Clinical Engineering and Information Technology Synergies Award, ACCE also conducted an Education Session named "Are You Ready for Integrated Infusion Pumps?" where Erin Sparnon and Jennifer Jackson talked about integrating infusion pumps in hospital settings, also referring to the AAMI HTSI White paper, Best Practice Recommendations for Infusion Pump-Information Network Integration. We also supported the IHE PCD demonstrations at the Interoperability Showcase. The ACCE Booth also received some good response and served as an important resource for learning more about our current activities and networking with some of the experienced and seasoned clinical engineers who generously volunteered their time at the booth.

Our most recent teleconference from the 2012-13 ACCE Educational Teleconference Series was conducted on March 14, 2013 on the topic – Succession Planning/ Developing Leadership.

Our Advocacy Committee, along with Ray Zambuto and Steve Grimes also worked on updating our brochures and reference material – Clinical Engineering and Information Technology and What's a Clinical Engineer. The newer versions of these documents contain latest information about Clinical Engineering, CE-IT collaborations and other resources.

ACCE International Committee is also working on updating its Policies and Procedures for International Activities of the ACCE; it is currently under review and pending Board approval.

Pratyusha Mattegunta, MS
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Welcome New Members

Let's welcome our newest members, recommended by Membership Committee and approved by the Board of Directors on March 25, 2013:

Individual Members:

Martin Cholette—Director of Clinical Engineering, St. Jude Medical, Sylmar, CA

Pratyusha Mattegunta—Clinical Engineer at Mass General Hospital, Boston, MA (Previous Candidate Member)

Jared Ruckman—Clinical Engineer at Mass General Hospital, Boston, MA (Previous Candidate Member)

Associate Members:

Sally Goebel—Sr. Technology Manager at Aramark/UNC Healthcare, NC

Valerie Taylor—Clinical Engineer at VA Connecticut Health System, CT

Emeritus Member:

Gary A. Evans, MS, CCE

Organizational Members:

Technical Services Partnership—University of Vermont, VT:

Tobey Clark, FACCE—Main Representative, Director, TSP/ University of Vermont

Wally Elliott—Clinical Engineer at Technical Services Partnership

Leah Rafuse Francouer—Clinical Engineer at Technical Services Partnership

Raymond Forsell—Clinical Engineer at Technical Services Partnership

Centro Nacional de Excelencia Tecnológica en Salud (CENETEC), Mexico

Roberto Ayala Perdomo—Biomedical Engineer

María Luisa González Rétis—General Director

Laura Patricia López Meneses—Biomedical Engineer, Clinical Engineering Department

Elsa Elena Arellanes Jarquin—Biomedical Enigneer, Analysis and Medical Equipment Information

Elizabeth Orencio Lizardi—Clinical Engineer, Clinical Engineering Department

Mayabel Garcia Calderón Chávez—Biomedical Engineer, Healthcare Technology Management Department

Nayeth Palma Espinosa—Manager, Intensive Care and Operating Room

Jesús Ignacio Zuniga San Pedro—Manager, Image and Radiotherapy

Brenda Olivares González—Biomedical Engineer, Clinical Services

Patricia Miguel Hernández—Manager, Planning

Irene Esmeralda Villegas Ortiz—Manager, Medical Equipment

Patricia Tamayo Ancona—Manager, Medical Equipment

Adrian Pacheco López—E-Health Director, Healthcare Technology Integration for Telemedicine

Verónica Gallegos Rivero—Biomedical Engineer, Healthcare Technology Assessment

Beatriz Cortes Baustista—Biomedical Engineer, Healthcare Technology Integration for Telemedicine

Would You Like to Write for ACCE News?

The ACCE News is always looking for good, short (~ 500—1,500 words), previously unpublished articles. Short technical articles, case studies, controversial issues, opinion pieces (in good taste of course), Other Clinical Engineering-related material is always welcome. If you have any ideas about a one-time article or a continuing series or a column, please contact one of the editors and we will discuss it with you.

Thanks for making the ACCE News your quality newsletter.

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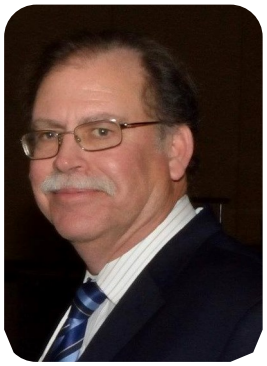
A farewell to our dear colleague and friend

By Malcolm Ridgway



The biomedical engineering community has been shocked to learn that Leslie Atles, better known as Les, passed away recently from complications of a relatively short illness that required him to be on a ventilator for the past six months. Les was a longtime member of the clinical engineering community and is probably best remembered as the editor of *A Practicum for Biomedical Engineering & Technology Management Issues,* published by Kendall/Hunt in 2008, and as a co-author of the *Affinity Reference Guide for Biomedical Technicians*, published in 1995.

Les received the CMIA Professional of the Year Award in 2009 .

Les joined the VA Greater Los Angeles Healthcare System as Chief Biomedical Engineer in 2010. Before that, Les had spent 17 years with MasterPlan, as the Director of Technology Management, and before that, many years with Marquette Electronics. He started his long career in the 1970s as the Director of the Biomedical Engineering Department at St Vincent Medical Center in Los Angeles.

Les was also the author of the original 1994 version of the current AAMI guide on *How to establish and maintain a local biomedical organization* and was a pioneer in this area. He was a revered Lifetime Member of the California Medical Instrumentation Association (CMIA) and longtime member of ACCE. He will be long remembered as an instructor and mentor to many, many members of our clinical engineering community. He received the CMIA Professional of the Year Award in 2009 and ACCE's Marv Shepherd Patient Safety Award in 2010.

Les received the ACCE– HTF Marv Shepherd Patient Safety Award in 2010.

As evidence by the many quotes previously posted on the ACCE website, Les will be greatly missed.

"We'll miss Les and will remember his exemplary contributions to enhancing the health of our communities and bringing our profession to higher levels."
—Mario Castañeda

"Les was a leader in our field with his books being benchmark references. He was appreciated and touched by far more than he knew - a good man."
—Tobey Clark

"A great loss to the CE world and all who knew him."
—Ismael Cordero

"Indeed a great loss of, in addition to family man, a caring and kind friend. Les brought shining light to the clinical engineering badge and his contributions will keep on shining for our profession."
—Yadin David

"I do not think I ever met him in person but I did have the privilege of participating in his great achievement, the creation of "A Practicum for Biomedical Engineering and Technology Management Issues" published in 2008. I also had the privilege of using his previous work, an updated version of the old Marquette handbook for biomedical engineering in a number of educational settings. Along with Professors Webster and Dyro, he was a leader in trying to define our profession and help new members to profit from the experiences of those who had gone before. I think an excerpt from the dedication of his practicum" sums up Les' love of the profession and the people in it: "all the men and women of this profession that I feel so privileged to be a part of" It is we, Les, who have been privileged to work with you."
—Tom O'Dea

"Les will be greatly missed. I miss him already."
—Izabella Gieras

"Les was a good soul and he will be missed by all of us....He lives on in the memory of his friends and all those he's touched. All of us can only hope that we, like Les, leave this world a better place when our time comes. My thoughts are with Linda and his family...God bless."
—Steve Grimes

"And in my experience consistently pleasant--if not jovial. His demeanor is worthy of emulation."
—Bill Hyman

"I too am saddened at the loss of a prominent member of our society who still had many years of potential contributions ahead of him. But I am pleased to possess an autographed copy of his practicum."
—George Johnston

"He was an extremely valued contributor to our profession and will be greatly missed."
—Jim Keller

"Les was one of the few selfless leaders who would risk his own personal funds to revise, update, and expand an old classic (the Affinity Reference Guide) so we all can advance our profession to a higher level. His friendship and insights will be missed but his legacy will live on for many years."
—Binseng Wang

View from the Penalty Box:

10-Minute Misconduct Penalty

Through many years of involvement in healthcare, engineers have made both great contributions and mistakes. The mistakes are mostly not solving problems that have been around for years. We can solve them, but in doing so we will stir things up, so the 10 minute misconduct is coming our way. Sometimes the coach would tell a player that the team was not "into the game" so on your next turn on the ice, make something happen that will get the team together and involved. Sometimes that meant mouthing off at an official on a call but other times it meant dropping the gloves and using knuckle diplomacy to get the point across. We, clinical engineers, are like a gerbil on an exercise wheel, working hard at getting nowhere. Let us have a look at some of these long term problems.

Monitoring Alarms

Papers and presentations as early as 1973, forty years ago, pointed out that there were too many alarms going off in the intensive care units and on the patient floors. In 2013, patient alarms were at the top of the hazards list, published by ECRI. In many ways the evaluators of patient monitors in the 70's triggered the rush to alarms by requesting more alarms and downgrading companies that did not add alarms to their devices. We have to make a stand with new purchases and try to upgrade our existing monitors by turning off the vast majority of alarms that sound. Let's start by asking the users what alarms they need and what alarms are of no use to them clinically. Probably more than 75% of the alarms are not needed and they should be removed. Toronto Hospital for Sick Children, Boston Children's Hospital, and Washington Children's Hospital are applying a concept called T3, or tracking trajectory, and triggering, to develop interconnections between patient devices. Maybe this is what is needed to solve this alarm problem. We have the technology and the knowledge, now we just have to find the resources to bring those together to solve the alarm problem for good. Do the research, and present the facts to all involved. Hopefully they will agree with your findings that most alarms are just noise.

Infusion Pumps

The list of problems with infusion pumps is long, and for those trying to improve the pumps, it's very frustrating. Close to 50 years ago, a group of engineers at a small company spent a lot of time and effort in identifying problems that would have to be overcome in order to have a good infusion pump. The conclusion was that we did not have the technology to do the job. In 1990, here in Massachusetts, a study was done by the Department of Health on problems with IV pumps and what could be done. In 2007, additional studies were done, and in 2012 more studies were done, and the answers were a little different than 50 years ago. Now the study concluded that the technology is available to make the pumps, but the markets were controlled by the vendors making the solutions, who also made pumps and tubing. They controlled the products and were not ready to change hardware. Here is a perfect example of us, clinical engineers, not writing good specifications on the purchasing of pumps.

Repair Parts

The power of the pen can and should be wielded in this area. In an area hospital, an imaging device went down, made by a well known company that is reported to make 7 times the profit on parts and service as it does on capital items, and also for not paying taxes here in the US. The engineer got a quote from that company for $46,000.00 for the repair part, but went onto the open market and got the exact same item for $16,000.00. In a similar scenario, from a different vendor, when checking service reports, I found that a board was replaced on a machine on Monday and a board with the same serial number was used on a machine at another hospital that afternoon. It must

have been a miracle that the board repaired itself, or was it the company trying to make more profits? We need to share this information, when it happens, and just maybe companies will be less willing to overcharge or swap boards just for the billings.

Back in the dark ages, there was a lot of sharing between hospitals and departments. If we were interested in products from company A we would go to an area hospital that was using the product and talk with the users and the repair personnel. We got hard truths about what was good and bad about the device so we could make a good choice on which device to purchase. We would also share repair information, talk about what devices were giving us problems, and in extreme cases, share equipment. We worked hard to keep the information flowing between groups and to keep costs down. Enter the lawyers. All of a sudden we became islands, and communication between colleagues was discouraged. Oh, they would share information, but us poor lowly engineers could not. The results contributed to the rise in healthcare costs.

In closing, please share information with your colleagues so we can keep healthcare safe and affordable.

Dave Harrington
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A CE in Connectathon-land

I spent the week of January 28th in a sub-basement of the Chicago Hyatt Regency with 500 people working on computers. Doesn't sound very fun does it? On the contrary, it was a very exciting and educational week, when you consider what we were all doing. This was the week of the Integrating the Healthcare Enterprise's (IHE) Connectathon. Throughout the year, manufacturers work to enable their medical systems to communicate with each other by passing HL7 based messages and commands. The systems range from doctor office billing systems to EHRs and medical equipment. During the Connectathon, they all come together to create seamless clinical and patient information exchange. The Connectathon also 'screens' for the IHE Interoperability Showcase. A vendor can't participate in the showcase until it succeeds at the Connectathon.

I volunteered as a monitor for the Patient Care Devices (PCD) domain. Our job was to test message passing between various vendors. One of the vendors would let the monitors know when they thought they were ready for testing. We then ran the message through some tools to verify that the message-passing worked. If successful, we'd pass them and everyone would move on. If not successful, we'd work with the vendors to identify the issue and retest or pass as appropriate.

For me, this is all pretty new. I learned a lot more about HL7 and the work involved. I also worked closely with the engineers and programmers at various companies. It was very exciting to see competitors work together to accomplish this worthy goal.

I learned something about IHE – it needs the Clinical Engineering perspective. Who else has the overall perspective on device-related patient care throughout the medical environment? Most of the participants are manufacturers; they're focused on their products and the test protocol. Many don't understand the overall implications of the use environment. The HIMSS IHE group is focused on getting this all to work; there's a huge number of participants. While the opportunity to be a monitor is limited, there are opportunities to help. Our hospital experience helps keep the process focused on patient care. Clinical Engineers know what information is important; We know if it's relevant, needed, or appropriate and if it reflects the clinical environment.

One example from the Connectathon: There is a message to control multi-channel/multi-pump drug delivery. The test protocol requires dopamine to be the secondary drug. One pump manufacturer designed its pump to not allow dopamine as a secondary drug. It passed information on a drug that is allowed – allowing dopamine would require a pump redesign. By strictly following the test protocol, I failed that manufacturer. When I discussed the problem with its representatives, I realized they complied with the intent of the test and passed them. Without a CE there, it never would have passed that test.

The CE perspective is vital in assuring that the IHE project succeeds. I encourage you to learn more and volunteer either in the committees or as a docent at the HIMSS Interoperability Showcase. You can also support the effort by supporting vendors that participate in IHE or encouraging vendors not involved to join.

If you're interested or even curious, visit the IHE website: http://www.ihe.net/

And of course, I recommend visiting the PCD section: http://www.ihe.net/PCD/

In the future, I'll be more involved with IHE, so I'll keep you updated as well.

Paul Sherman, ACCE President-Elect

Healthcare Technology Foundation News

Various groups within HTF have been diligently meeting to move forward various strategic projects determined by the board: *Patient Education on Technology Safety, Clinical Alarm Management, and Managing Risks of Integrated Systems & Networks in Healthcare Environment.*

Patient Education on Technology Safety

This group consists of Jennifer Ott, Jim Keller, Jim Wear, Marge Funk, Hank Stankiewicz, Paul Coss, and Don Tucker. The group is looking to obtain partner feedback on the brochures developed to date and obtain guidance on future subjects. A list of partner organizations was developed, and each member agreed to make contact using an informative letter/script. Based on initial feedback, we may delve into further questioning of partner society members such as AACN or AARC. HTF is currently working through draft reviews of a Home Infusion Safety brochure. We hope to have released in next couple of months.

Clinical Alarm Management

This group consists of Tobey Clark, Jennifer Ott, Marge Funk, Jennifer Jackson, Yadin David, Nancy Pressly, Tom Bauld, Izabella Gieras and Paul Coss. Strategic planning activities have focused on fundraising for clinical alarm projects. Projects include a manuscript for the American Journal of Critical Care on the 2011 national survey which is nearly complete. The group is looking closely at the proposed Joint Commission 2014 National Patient Safety Goal on alarm improvement with plans to develop and send out a survey in 2013 and conduct a webinar on the subject. Other potential projects are around the use of clinical simulation for alarms studies, focused work on ventilator alarms, and analysis of the 2011 survey comments.

Managing Risks of Integrated Systems & Networks in the Healthcare Environment

This group consists of Yadin David, Ted

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Perspectives from ECRI Institute

Clinical engineers and biomedical technicians are in the business of reliability, safety, and cost containment. By continuously acquiring expertise on the technologies in use at the healthcare facilities you serve, you become a critical resource to your hospital or health system. Conferences, local professional association meetings, and technology training offer occasional opportunities to learn from colleagues and add to your knowledge. Biomedtalk, the online discussion forum for clinical engineers and technology managers, provides a simple way to network on a daily basis with colleagues and exchange ideas and experiences on topics ranging from overpriced service manuals and replacement parts to career advancement strategies. Post a question on Biomedtalk and expect advice from a whole community of technology experts.

ECRI Institute recently replatformed Biomedtalk and launched the new system in January 2013. So far, over 900 users have registered, and the discussion has been lively. Registration is free and only takes a minute at http://biomedtalk.ecri.org. The new system makes it easy to set up alerts to receive notification of new posts throughout the day or a daily or weekly digest of postings. It's a great way to stay connected with professionals who are working through the same technology management challenges that you face every day.

Many Biomedtalk discussions illustrate how clinical engineers are hard at work making healthcare technology safer, more reliable, and cost effective in their own communities. From buying printers online for surgical video systems at a fraction of the cost of OEM-supplied printers to updating second shift technician coverage and on-call strategies, clinical engineers are constantly identifying and implementing better ways to support the technology needs of clinicians and patients.

One recent thread delves into problems experienced by several members with physiologic monitoring in the MR environment. The discussion makes clear that this issue has affected many institutions, and a great deal of effort has gone into solving it to ensure a safe patient care environment. By sharing experiences and advice, active Biomedtalk participants extend their impact on healthcare beyond their place of employment to the broader healthcare community. We all benefit from this free exchange of knowledge.

As we approach the end of the first quarter of 2013, clinical engineers should reflect on recent technology management accomplishments and consider submitting an entry for the 2013 Health Devices Achievement Award by the June 3, 2013 deadline.

The 2012 award went to Johns Hopkins Hospital for research it conducted on managing alarms in various clinical care settings. Clinical engineering played a central role in this important project. By making modest changes to default parameter settings, along with standardizing care and equipment and providing reliable ancillary alarm notification, the Johns Hopkins team was able to significantly reduce the number of clinically insignificant alarms. This work yielded substantial progress towards managing the number one hazard on ECRI's Top Ten Health Technology Hazard lists for 2012 and 2013. Furthermore, it provides a road map that other healthcare providers can follow to tackle one of the most vexing problems in healthcare technology.

You need not be a large university medical center to win the Health Devices Achievement Award. The winners circle includes a 25-bed Critical Access Hospital that won for its implementation of telemedicine technology to bring cutting edge care to a rural community. If you or someone at your hospital has made progress on managing a technology hazard or has leveraged technology to improved patient care in a meaningful way, nominate your organization for this year's award. By making an entry, you will bring prestige to your hospital and help others to learn how they might duplicate your success. Instructions for submitting an entry are on the ECRI web site at https://www.ecri.org/Products/Pages/Health_Devices_Award10.aspx.

Eric Sacks, Director of ECRI Institute's Healthcare Product Alerts
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Healthcare Technology Foundation News

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Cohen, Izabella Gieras, Marcia Wylie, and Bill Hyman. The group has met and reviewed all the historical documents. The next step is to develop learning objectives for the agreed upon topics. Each committee member is tackling that initial development. Once completed, it will be standardized and shared with AAMI who is partnering with HTF on this project. There is an aggressive schedule to validate the content, find subject matter experts, find hospital participants, and develop e-learning opportunities. Fundraising for future phases is also being considered.

Annual Meeting

HTF will hold its annual meeting following the 2013 AAMI Exposition in Long Beach, CA on June 4th. We always benefit from the face to face discussions and the enhancement to our strategic plans.

Be sure to visit the HTF website to see all the latest news from the foundation, 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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AAMI Update:

HTSI Comments on Alarm Safety, Sterile Processing Benchmarking Partnership, and AAMI, FDA to Hold New Summit

Alarm Safety

Medical device alarms are vital for ensuring proper patient care and alerting healthcare providers of life-threatening conditions. However, if improperly managed, they also can compromise patient safety. Recognizing this threat, The Joint Commission (TJC) sought stakeholder feedback earlier this year on a proposed National Patient Safety Goal (NPSG) on alarm management for critical access hospitals and hospital accreditation programs.

The AAMI Foundation's Healthcare Technology Safety Institute (HTSI) has submitted comments to TJC, providing some of its ideas for improving alarm system management.

In its general comments about the NPSG, HTSI emphasized that the vocabulary the safety goal used should be consistent with international standards for medical devices. "For example, saying we have an 'alarms problem' isn't sufficiently clear. We may be talking about alarm signals, alarm conditions, alarm settings, or alarm systems," the institute emphasized, adding that its comments will follow the vocabulary in the international standard IEC 60601-1-8:2006.

It referred TJC to the glossary in the AAMI publication summing up a 2011 summit on clinical alarms, convened by *AAMI, the FDA, TJC, the American College of Clinical Engineering, and ECRI Institute. A free copy of that summit report* is available at www.aami.org/publications/summits/index.html.

HTSI also noted that it assumed TJC was referring to audible alarm sounds in the NPSG. It recommended that the commission clarify whether it was addressing audible alarms or all types of alarm signals.

Sterile Processing Benchmarking

AAMI and the International Association of Healthcare Central Service Materiel Management (IAHCSMM) are teaming up to enhance and promote *Benchmarking Solutions—Sterile Processing*, a web-based platform that helps sterile processing departments compare their budgets, personnel, practices, and policies with those at other facilities.

AAMI launched the online benchmarking platform nearly two years ago. Now by collaborating with IAHCSMM, the benchmarking tool promises to be even more robust. The collaboration is important because the two organizations have a combined membership of more than 26,000, which will help attract more subscribers and generate more benchmarking data.

Through this collaboration, members of AAMI or IAHCSMM will receive special discounts to subscribe annually to the benchmarking platform. Individuals can order the benchmarking platform by either calling 877-249-8226 or visiting www.aami.org/spb/orderform.html. The order code is: SPB.

In addition, AAMI and IAHCSMM have formed a 12-person task force to oversee the benchmarking platform, review the benchmarking survey and platform annually, and recommend enhancements. Rose Seavey, a sterilization consultant who will serve on the task force, called the collaboration "a great step toward bringing quality to sterile processing."

"It will give those in the field some 'ammunition' to get the tools and resources they need to provide safe and efficient patient care," said Seavey. "Being able to compare a facility to like facilities will produce extremely useful real benchmarking data for such thing as budgets, equipment, practices, and staffing. That is the kind of data that healthcare administrations will listen to."

The sterilization benchmarking tool was created in collaboration with software developer Dynamic Benchmarking (http://dynamicbenchmarking.com).

New Summit for Distributed Care

As healthcare facilities look to save money, and patients rely increasingly on mobile devices to monitor their conditions, technology is moving out of hospitals and into homes and other nonclinical settings—a trend known as distributed care. But while patients and hospitals see the benefits of this trend in terms of convenience and reduced costs, there are also risks and challenges to consider as more technology moves into the hands of laypeople.

To address issues surrounding the rise of distributed care, AAMI and the U.S. Food and Drug Administration (FDA) will host a two-day summit Oct. 9–10 in Herndon, VA, near Washington, D.C.'s Dulles International Airport.

The summit is geared toward a range of stakeholders, including clinical engineers, medical device manufacturers, information technology experts, nurses, doctors, regulators, academics, and other healthcare technology management professionals. Attendees will hear presentations from experts and discuss priorities and potential solutions for the risks surrounding the move of care to nonclinical settings.

"If nurses and other skilled healthcare professionals can find medical devices and technology confusing, imagine what a nonexpert faces," AAMI President Mary Logan says. "Moving healthcare technology to nonclinical settings isn't simply a matter of physically moving devices outside the hospital. It requires a new mindset, one that appreciates the unique challenges found in these noncontrolled environments. This summit will consider those challenges and how best to address them through a patient safety lens."

The distributed care event will mark the

(Continued on page 15)

An Update from the International Committee

The winter season was a busy time for the International Committee. The members were very active working on different projects for the 2013 activities.

The "General Guidelines for Activities of the ACCE International Committee" has been approved by the ACCE Board and will be available in the member's area of ACCE website. The document compiles the experiences developed by ACCE for over more than 20 years of international activities. The document also provides guidance on the coordination of activities and relationships of the International Committee, the IC operation, the negotiation and implementation of the "Advanced Clinical Engineering Workshops (ACEW)", the collaboration with international organizations and societies, and the strengthening of the international membership program. The guidelines were a priority project for 2012, and it was a team effort under the leadership of Ismael Cordero and Bill Betts. Thank you both for your leadership and involvement in this document.

Since they began operating in January 1999, the internet-based discussion group INFRATECH, owned by the World Health Organization (WHO) and hosted by the Pan American Health Organization (PAHO), has been administrated by ACCE. During these 14 years INFRATECH has facilitated the communication and information exchange on topics related to health services' physical infrastructure and technology among its more than 300 members in 49 countries. After 14 years of operation, INFRATECH will be incorporated into the WHO health technology communication platform. Adriana Velazquez will inform the group's subscribers about the transition to the new venue. Mario Castañeda, assisted by Bill Gentles, will facilitate the ACCE's part of the transition process and the role of the ACCE in the new system. Thank you Bill Gentles for your great and efficient work in administrating INFRATECH for more than 9 years.

The ACEW season has started and some countries have requested workshops for 2013. In order to better respond to these requests, the IC has started a project to update the information on the current volunteer faculty roster. This is an opportunity to join the roster if you want to be part of the faculty supporting the International Clinical Engineering community worldwide. You can contact Frank Painter if you are interested on being part of the ACEW faculty.

This year the International recipients of ACCE awards were as follows:

2013 Antonio Hernandez International Clinical Engineering Award

This award was presented to Professor Renato García Ojeda, Director of the Biomedical Engineering Institute of the Federal University of Santa Catarina in Brazil.

ACCE/HTF International ACEW Award

CES University (CES) and Escuela de Ingeniería de Antioquia (EIA) Biomedical Engineering Partnership program in Medellin, Colombia. The partnership program is led by Eng. Tatiana Molina Velasquez (CES) and Jesús María Soto Castaño, M.D. (EIA).

Congratulations to the recipients of this year awards!

It is with deep sorrow that I inform you of the passing of Prof. Luis Lara Estrella from Venezuela. Prof. Lara was a dear friend and colleague for more than 30 years. He attended the First "Advanced Clinical Engineering Workshop" in Washington DC in 1991. He also was a faculty member for the ACEW in Costa Rica in 2002. We want to send our deepest condolences to Prof. Lara's family, the Clinical Engineering community of Venezuela, and the Simon Bolivar University.

Antonio Hernandez, Chair
internationalchair@accenet.org

ACCE at HIMSS 2013

CE-IT/ACCE Awards Reception

Sponsored by Awarepoint

ACCE President, Jim Keller, opening the event

Matt Perkins, Awarepoint's Chief Technology Officer provided a short presentation during the reception.

Tom Judd, ACCE Advocacy Committee Chair

Mario Castenada, on behalf of Antonio Hernandez, International Committee Chair

Many thanks to Michael Fraai for his support and dedication as Member-at-large 2010-2012.

Many thanks to Izabella Gieras for her support and dedication as Member-at-large 2008-2012.

NEW ORLEANS HIMSS13 ANNUAL CONFERENCE & EXHIBITION

Congratulations to 2013 Challenge Award winners: Nico Arcino and Shawn Jackman.

Congratulations to 2013 Tom O'Dea Advocacy Award winner: Paul Sherman.

Congratulations to 2013 Student Paper Competition Runner-up: Mariana Hu.

Paul Schluter, one of the lucky winners of the evening raffle, and John Rhoads

The event was a great opportunity for networking and catching up with colleagues.

More photos on page 13!

A New Medical Equipment Program Starts in Malaysia:
Developing an instructor training program

Early in September of 2012, I was contacted by Azman Hamid with the Commission for the Advancement of Healthcare Technology Management in Asia (CAHTMA). Azman, located in Malaysia, inquiring about their training needs for Instructors in a new Medical Equipment program at Politeknik Sultan Salahuddin Abudul Aziz Shah, a technical school with 3 and 5-year programs. The Medical Equipment program is within the Electrical Engineering Department and has about 1,000 students. The head of the Electrical Engineering Department, Hjh Roziah Hj Abdul Latiff, is leading the development of the program.

This new department has a calibration lab for test equipment, furnished mostly with Fluke equipment. They also have all the Fluke test instrumentation for medical equipment. Since none of the lecturers had any experience with medical equipment or hospitals, they wanted training on the use of the test equipment. They also had a good set up of medical equipment for teaching and desired training on the use and maintenance of the medical equipment.

The head of the department and two other lecturers already had a trip to the US scheduled for other training and wanted to see if they could receive training on the use of the test equipment while in the US. I checked with some schools that teach biomed technicians and was unable to find one that had the time to develop the necessary training program on such short notice. They wanted to plan the training for the end of October through the first two weeks of November.

I checked with Kevin Haralson, CBET, CLES Director of Clinical Engineering at Arkansas Children's Hospital in Little Rock, Arkansas and found that they had most of the test equipment. They also had some good instructors in their staff of 12 BMETs. We agreed to develop a two week program with some lectures on Clinical Engineering Management and tours of hospitals.

The lecturers arrived in Little Rock on October 27th and departed November 9th, 2012 which made for a short time frame to develop the training. We also had to schedule the training around Muslim prayer time and had to find food that they could eat that aligned with their customs. The food was the biggest issue since Little Rock has a very small Muslim community. Only two restaurants prepared beef in the proper manner, but fortunately they liked catfish and also prepared some of their own meals.

Nor Sham Binti Hasan, Ramli Jiman, and Hjh Roziah Hj Abdul Latiff in front of Arkansas Children's Hospital .


Staff of the Clinical Engineering Department at Arkansas Children's Hospital and the lecturers from Malaysia.

We started the training at Arkansas Children's Hospital on October 29th with a half-day of lectures or tours and half a day of lectures and hands-on time with the test equipment. The test equipment training was very flexible to be sure that the lecturers learned how to use it. I lectured on Clinical Engineering Management topics until November 5th.

After completing the training for the test equipment, the students would be able to meet the following competencies:

- Capable of performing electrical safety tests and performance checks using test equipment
- Able to interpret test results
- Able to conduct training on the use of the test equipment
- Able to explain the reason for conducting the tests

The test equipment training covered about 25 different pieces of test equipment, from very simple devices to safety analyzers and RAD test equipment. Part of the training was done by Respiratory and Radiology staff that used the test equipment. Also, a portion of the training was completed at the University of Arkansas for Medical Sciences on test equipment related to neonatal equipment.

Hjh Roziah Hj Abdul Latiff and her two lecturers were very pleased with the training that they received. They hope to be able to send other lecturers for the same training in the future. They were very pleased with the staff of the Clinical Engineering Department and their sensitivity to their cultural needs.

The school also wanted training in Malaysia for about ten instructors on the use and maintenance of the medical equipment, including how to assess the students. We were able to send Roy Morris, CBET to Malaysia for three weeks for most of this training. He has done mission work including teaching in several parts of the world and worked on equipment from different countries. He went to Malaysia mid-October for the three weeks of training. Prior to this three weeks of training, the lecturers had two weeks of train-the-trainer on the basics of biomedical equipment by a Malaysian trainer.

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A New Medical Equipment Program Starts in Malaysia:
Developing an instructor training program

(Continued from page 12)

Roy Morris teaching a few of the faculty in Malaysia

The first two weeks of Roy's training program in Malaysia included how to assess if the students could maintain and repair the equipment that they were being trained on. This was conducted so that the lecturers would be able to grade the students that they trained and be assured that they could perform in the work place. This included using checklists and hands on repairs. It also included how a supervisor would assess their employees, which Roy had a lot of experience with as a department manager. Some of the assessment training was on infusion devices, electrocardiography, physiological monitoring systems and ventilators. The lecturers were tested as assessors and certified by CATHMA with Certification for Clinical Engineering Assessors. Lecturers who completed the five weeks of training and passed the exams were certified by CATHMA with Certification for Clinical Engineering Trainers.

The last week of Roy's training program covered detailed maintenance and repair of anesthesia systems, ventilators, defibrillators and ultrasound systems. This included the use of the equipment and interfaces. All of the equipment training there had to be very flexible and include the clinical use since the students had no experience in the medical field.

Again Hjh Roziah Hj Abdul Latiff and her lecturers there were pleased with the training and most received the certifications.

The basic program is a 3-year degree program and the advanced program that includes management courses is a 5-year degree program. The program has a good base with electrical engineering courses under the Electrical Engineering department. There is a demand for graduates since the government is developing regulations for the field and provides contracts for the maintenance in the government hospitals.

Towards the end of November 2012, I visited the program as the keynote speaker for the Innovation and Commercialization for Medical Electronic Technology (ICMET 2012) Symposium. The lecturers were very enthusiastic about their program and are very pleased with their space and equipment. The program includes a semester internship for the students with a hospital or company. They have high level personnel in the medical field and government on their advisory group.

James Wear and Azman Hamid at the Innovation and Commercialization for Medical Electronic Technology meeting in Malaysia

James O. Wear, PhD, CCE, FASHE, FACCE, FAIMBE, CHSP

ACCE at HIMSS 2013

(*Continued from Page 11*)

ACCE Educational Session: Are You Ready for Integrated Infusion Pumps?

Presented by Erin Sparnon & Jennifer Jackson

Erin Sparnon

Jennifer Jackson

Book Review: Medical Equipment Maintenance (MEM) - Management and Oversight

Binseng Wang, ScD, CCE, fAIMBE, fACCE**,** ARAMARK Healthcare Technologies, 2012

A Publication in the Morgan & Claypool Publishers series, *Synthesis Lectures on Biomedical Engineering,* John D. Enderle, *Series Editor*

Dr. Wang is SMART. So is his new book, just released in the fourth quarter of 2012. Let's find out why.

The book's content and scope include:

Regulatory Framework:	Federal & State Laws, Regulations, and Codes; Standards and Recommended Practices
Core Functions of MEM:	Incorporation; Installation/Acceptance; User Training; Maintenance; Replacement; Safety/RM
CE Department Management:	Policies and Procedures; CMMS; Staff Management & Development; Service Provider Management; Financial Management; Relationships with Other Departments, e.g., IT; Performance Monitoring, and CI.
Performance Management::	Maintenance Effectiveness & Efficiency; Financial Efficiency; Productivity; Benchmarking
MEM Challenges:	Related to Size, Acuity, Geographical Location, and Cultural Tendencies; Evidence-Based Maintenance
Sample Policies for a CE Department; Internet Info & Data Sources; Bibliography; & Author's Biography	

So why is this MEM book SMART? Read it and find out …here's some key themes it addresses:

Specific	Does this resource give specifics on all key aspects about Medical Equipment Management (MEM)?
Measurable	Does this resource give the reader clearly understandable metrics regarding how MEM success will be measured?
Attainable	Is it realistic to expect to deploy these MEM Management & Oversight (M&O) tools as written?
Relevant	Does the use of these M&O tools allow the reader to support the goals of their department, division or institution?
Timely	Does the use of these MEM M&O tools allow the reader to meet timely current Clinical Engineering (CE) or Health Technology Management (HTM) professional needs or requirements?

Specific

Safety and affordability; it's clear from the beginning (*Abstract*) what the author believes successful MEM (CE/HTM) can accomplish for healthcare organizations. Core foundations underpinning this success are the "laws, regulations, codes, and standards" applicable to MEM.

Examples: federal/state laws/regulations enforced through CMS - e.g., Medicare accounts for 47% of all U.S. healthcare reimbursement, FDA, OCR (e.g., HIPPA), OSHA, and FEMA, often via hospital accreditation (e.g, TJC). Or standards and codes from NFPA and AAMI.

The content noted above clearly addresses all modern aspects of MEM. The book is aimed not only at better informing MEM practitioners, but their overseers as well, e.g., "hospital COO, CFO, VP of Support Services, Supply Chain, Information Technology-IT … and hospital administrators". The *Introduction* cites:

> *"Studies conducted using data collected from hundreds of acute-care hospitals indicate that on average, each hospital acquired about 15–20 pieces of medical equipment for each staffed bed, which translates into a capital investment of around US$200–400,000/staffed bed. Thus, it is common for a 500-bed hospital to own more than US$100–200 million worth of medical equipment and considerably more if it is affiliated with a medical school. The same studies have indicated that annual medical equipment maintenance and management cost is approximately 1% of the total hospital budget, so a 500-bed hospital spends typically around $5 million/year."*

More on safety: *"In addition to its high maintenance costs, medical equipment is often involved in patient incidents that resulted in serious injuries or deaths."*

> *The Joint Commission (TJC) statistics support "hospital's leadership responsibility to confront these incidents, as the primary causes are human factors, leadership, communication, and clinical assessment … that can be addressed by medical device user training and enhanced interaction between clinicians and technical staff." To promote effective equipment Risk Management-RM & Continual Improvement-CI.*

Measurable

Two (of several) examples cited - Total cost of ownership (TCO):

> *"Typically, the initial investment, including purchase price of the equipment and accessories, shipping, insurance, installation, licensing, training, etc., adds up to less than 20% of the TCO. Remaining initially "invisible" expenses incurred during the equipment useful life (sometimes >15 years), are supplies, utilities, maintenance services, upgrades/updates, overhead, user training, and self learning."*

Reliability is usually measured by the availability of equipment for

(Continued on page 15)

Book Review: Medical Equipment Maintenance (MEM) - Management and Oversight

Binseng Wang, ScD, CCE, fAIMBE, fACCE, ARAMARK Healthcare Technologies, 2012

A Publication in the Morgan & Claypool Publishers series, *Synthesis Lectures on Biomedical Engineering,* John D. Enderle, *Series Editor*

clinical use.

> *"For mission-critical/heavily used equipment (e.g., MRI, CT, linear accelerator, etc.), availability is typically measured by its uptime, defined as the % of time the equipment is available for use versus total possible. For non-mission-critical equipment (e.g., infusion pumps, patient monitors, etc.), uptime is difficult to measure because normally backups are available. … it is common to use failure rate, defined as the number of verified failures per year as a % of the total number of pieces of equipment in the inventory". There is an extensive Table defining "Failure Codes" that can help CE/HTM departments "determine appropriate adjustments to the maintenance program."*

Attainable and Relevant

Another key *Table* provides a sample balanced scorecard for a CE Department, divided into four dimensions:

In the operational performance dimension, process indicators such as scheduled maintenance completion rates, average service call response time, etc., are used to gauge the implementation of defined service strategies.
In the financial performance dimension, indicators such as total CE expense as a % of total inventory acquisition cost and total CE expense per patient discharge are used to monitor service efficiency.
In the user perspective dimension, various indicators such as customer satisfaction score, uptime for mission critical equipment, and global failure rate for other equipment are used to assess service effectiveness.
Finally, in the staff learning and growth dimension, indicators such as staff retention (turnover) rate and employee satisfaction score are used to measure staff motivation and growth potential.
By itself, none of the four dimensions is sufficient to provide an accurate picture of a CE Department. Together, they provide a comprehensive assessment of the department and, thus, provide insight that can assist the CE manager to make corrections and improvements to foster growth and evolution.

Timely

In this era of Electronic Medical Records (EMRs) and medical devices central to attaining Meaningful Use, Dr. Wang concludes that ongoing and timely course corrections are vital to hospital and healthcare management success:

> *"… CE departments are vital resources for all healthcare organizations. Without safe and reliable medical equipment, it is impossible to deliver care. Furthermore, if CE is not properly managed and does not comply with applicable laws, regulations, and standards, the hospital runs the risk of losing the significant portion of its revenue that is derived from (federal) reimbursements…..*
>
> *While CE staff is required to be highly competent in technical areas, CE managers and senior leaders who oversee these departments are not required to have in-depth technical competency or experience. However, the latter need to understand and appreciate the reasons why certain equipment maintenance and management tasks need to be performed, how to monitor and measure the performance of the CE team, and how its performance compares with other teams in similar organizations, so improvements can be made continually."*

Reviewer's Conclusion

I strongly recommend this resource for the full gamut of healthcare stakeholders: new and experienced Clinical Engineers, for those preparing for CCE certification exams, as well as for those healthcare leaders that will either oversee or work alongside clinical engineers in the U.S. and around the world.

I hope I have provided the readers with a small taste of this book; there is much, much more. An amazing amount of experience and detail gives you a clear analysis of leading edge MEM analysis and strategies. Check it out!

Tom Judd, ACCE Advocacy Chair
Judd.tom@gmail.com

AAMI Update

(Continued from page 9)

fifth time that AAMI and the FDA have joined forces to host a summit on a pressing issue in healthcare technology, and it is expected to follow the format of its predecessors. Previous summits have focused on clinical alarms, infusion pump systems, reprocessing, and medical device interoperability.

For more information about past AAMI summits, please visit www.aami.org/meetings/summits

For inquiries about this AAMI update, contact Sean Loughlin at sloughlin@aami.org.

ACCE-CCE Exam Review Class

Thursday and Friday – May 30 and 31, 2013

Long Beach Convention Center, CA

Registration Deadline: April 26, 2013

Prepare for the CCE exam. This class 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. A mock exam as well as a session on the oral exam will be presented.

Sign up online or email your registration form to ACCE Secretariat, secretariat@accenet.org.

The registration fee is:
$450 for ACCE members
$495 for non-members
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.

ACCE Calendar

April 10, 2013
CE-IT Virtual Town Hall Meeting: "Clinical Concerns with Medical Device Integration"
Meeting Registration

April 11, 2013
ACCE Educational Teleconference: Business Plan/ Strategy Writing, by Stephen Grimes
Teleconference Registration

April 24, 2013
CCE Oral Exam Review Teleconference
Teleconference Registration

May 9, 2013
ACCE Educational Teleconference: HL7
Teleconference Registration

May 30-31, 2013
CCE Review Course, Long Beach, CA
Review Course Registration

June 1-3, 2013
ACCE at AAMI
More Information

June 2, 2013
ACCE membership meeting & awards reception
7PM, Hyatt Regency Long Beach, Long Beach, CA
RSVP here

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AMERICAN COLLEGE OF CLINICAL ENGINEERING

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