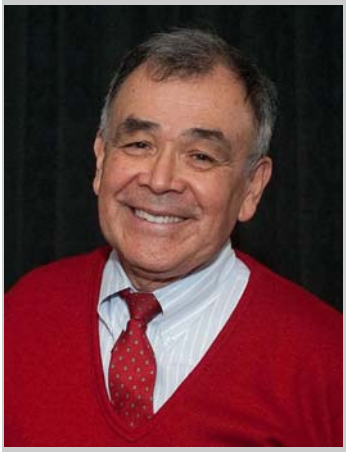

# ACCE News

Newsletter of the American College of Clinical Engineering

May/June 2012 Volume 22, Issue 3


## President's Corner: Summer Solstice



We are greeting the summer solstice with the satisfaction of having produced great ACCE events at the recent 2012 AAMI Convention and Expo in Charlotte, NC. I am delighted to report about our ACCE activities at this medical device oriented convention where many professionals, professional organizations, Health Technology Management organizations, and vendors have the opportunity to meet every year. One great joy for me at the AAMI meeting is experiencing how our organization brings a talented group of people to organize and produce ACCE events, and to participate as speakers and leaders of several AAMI programs.

Let me start with the ACCE Symposium for this year "Clinical Engineering and Health Technology Management Impact on Clinical Outcomes." This event brought to the audience the perspective of a physician, nurse, clinical engineers, and vendors on the impact of clinical engineering on clinical outcomes. During the presentations each speaker described the role clinical engineers have (and would like them to have) in their respective field and subsequently connected the impact clinical engineers have on clinical outcomes. Although perspectives were diverse, the messages intersected at several points:

The clinical environment has radically changed in recent times, and traditional practices have disappeared or are disappearing. We are moving away from approaches such as informal collection and recording of clinical data to later input in the clinical record - literally writing patient data on scrub pants and jackets; focus on discrete devices - taking pride in maintaining one box at a time; and relationships with nursing based on maintenance of single devices.

There is a new order of things in the care delivery space. New technology has driven changes in regulations, legislation, consumer engagement, tolerance for risk, and mode of care delivery. The term "new care delivery normal" describes the new order, and senior management navigates this new care delivery normal with strategies that align revenue, efficiency, and risk reduction. Technology complexity brings additional relationship encounters among disciplines making innovation and overall success is a team sport. Technical and clinical support job duties blur at the point of care.

The need is great and there is plenty of opportunity for clinical engineers to significantly impact the new normal:

Opportunities will come from solving the oncoming problems, among others, reducing medical errors, integrating technologies, simplifying technology for the user, developing integration and interoperability standards for implementation by manufacturers, designing the future clinical intervention rooms , managing the interface of patient signals and the Electronic Medical Record, and managing risk in this environment. The new skill sets required to satisfy the new demand can be added to the present foundation of competencies. As for clinical engineering contributions to risk management [and clinical outcomes], a clear comparison of the difference between care delivery with clinical engineering support versus care delivery without clinical engineering support should drive the point home.

After the presentations Doctor Julian Goldman, from Partners Healthcare, led a panel discussion and the audience participation activity. He started by presenting examples (previously available to

(Continued on page 2)

**In this Issue:**

# President's Corner: AAMI 2012

*(Continued from page 1)*

the audience in a hand out (www.mdpnp.org) of clinical scenarios with adverse events as a preamble for the panel discussion and as a reference for audience interaction. The panelists presented several examples of systems and processes in their own organizations that are already addressing these challenges. They further addressed the questions from the audience and the common theme in their response was that the methods, metrics, and standards for integrated medical device systems will stay focused on outcomes that address the patient's welfare first and keeps it from being lost in the middle of visible and fast moving technology that is changing the health care environment.

Later on the convention floor, I had the chance to attend the keynote speaker presentations. I appreciate the world class keynote speakers that AAMI brings to its annual conventions, and particularly enjoyed two speakers. On Sunday, Art Glasgow, CIO and vice president at Duke Medicine in Durham, NC, spoke about "Collaboration as Strategy." Art brought collaboration to a level of interdependence within departments and organizations that could be interpreted as risky at first but when appropriately implemented is financially and operationally rewarding at the end. He recommended creating collaborative structures and processes whenever possible. Benefits of committing to collaboration include: elimination of variation, increased effectiveness, and continuous improvement. Collaboration, Art explained, is not cooperation; it is a behavior, not a thing – like innovation. At the end of the day the action of implementing collaborative structures and processes is what counts – he closed with a call for action "knowing is not enough, we must apply; willing is not enough, we must do."

On Monday, I listened to Robert L. Jesse, MD, PhD, principal deputy Under Secretary for Health Veterans Health Administration Department of Veterans Affairs in Washington, DC, talk about "Striving for Excellence in Health Care." What a breath of fresh air to hear a senior manager in a large health care organization include in a strategy for improving organizational effectiveness well known and proven engineering methods and process now common place in other industries. One key concept is that other industries use real time data to drive decisions – the technology is available to do this – versus the practice in health care of using analyses based on old data to decide how to optimize the use of current fast moving technologies – he summarized his quest for excellence strategy with the statement "…better systems, [bring] better information, and [drives] better decisions, [and therefore delivers] better health."

Clinical Alarm management, Integration and interoperability, and Joint Commission updates were among the session subjects more talked about with my peers while I roamed the floor trying to catch a few sessions between my ACCE related meetings, and visiting the Exhibit Hall. It is worth noting that the ACCE booth at the exhibit was busy, and Suly Chi, ACCE Secretariat, reported a high activity on inquiries for membership and certification. I understand that our merchandise sales were also higher than in other meetings.

An activity that left very good memories at this convention was the ACCE Membership Meeting and Award Reception. We are grateful to all our sponsors for supporting the largest yet of our ACCE receptions. Awarepoint, Philips, Four Rivers, and Sotera contributed this year. Four Rivers was recognized for its continuous support of our event year after year, and Awarepoint was recognized as our major sponsor for their level of contribution and their commitment to supporting ACCE's Mission. The highlight of the evening, The ACCE Awards, followed an update about ACCE activities. The Advocacy Committee and Suly Chi designed an informative and illustrated booklet -- available at www.accenet.org -- that described the awards details and the recipients. Nine outstanding professionals and one organization were recognized and awarded for their outstanding contributions to the field and to the profession. Four students were awarded and recognized as winners and runner ups of the Clinical Engineering Student Paper Competition.

In closing, I want to recognize the team that propelled this year's ACCE events at the 2012 AAMI Convention to the top. Attendance, attendee evaluation, and event sponsorship were the highest to date. Suly Chi, Antonio Hernandez, Tom Judd, and Ilir Kullolli on behalf of ACCE and personally it is my pleasure to thank you for all you hard work in providing this level of event to our members, partners, and friends.

*Sincerely,*

*Mario Castaneda*

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## ACCE News

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# AAMI 2012: The ACCE Symposium

The Clinical Engineering symposium, sponsored by ACCE, kicked off the conference Saturday morning. The symposium focused on Clinical Engineering and Healthcare Management's impact on clinical outcomes, featuring the perspective of both the provider as well as industry. Dr. Julian Goldman, Medical Director of Biomedical Engineering for Partners Healthcare in Boston, MA, provided his experience as an anesthesiologist,

Julian Goldman, MD, Anesthesiologist and Medical Director of Biomedical Engineering for Partners Healthcare in Boston, MA discusses the electronic medical record.

transitioning from paper documentation to a fully implemented electronic medical record, a feat that would not have been possible without collaboration and continued support with Clinical Engineering.

Lori T. Harrison, RNC and MSN of Nursing Informatics at Kaiser Permanente, followed Dr. Goldman, presenting on the continuously changing relationship between nursing and Clinical Engineering. Her early relationship provided little collaboration with clinical engineering only providing support for the equipment. Demands for improvement in patient care led to a change in the relationship. She began work with clinical engineering to obtain data, analytics, and information technology, working together to improve patient care and clinical outcomes. Lori also summarized some of the studies Kaiser Permanente has recently completed to improve workflow for nursing, improvements that have been implemented, and considerations for future improvements. Dr. Yadin David of Biomedical Engineering Consultants LLC and Dr. Purna Prasad of Stanford Medical Center represented clinical engineers and technologists in the symposium. Dr. Yadin David joined remotely via Skype. Dr. Purna Prasad presented on the increasing role technology is taking impacting clinical outcomes, arguing that clinical engineers and technologists are best suited to manage this technology. Dr. Yadin David focused more on the C-suite's desire to align revenues, increase efficiency and reduce risk factors. Dr. David commented that clinical engineers are a valuable contributor to the risk management process for care providers.

Representing vendor and standards perspectives of clinical engineering impact on patient outcomes was John Rhoads of Philips Healthcare and Dr. Paul Schulter of GE Healthcare. Dr. Schulter began discussing the MIT-BIH arrhythmia database, developed in 1980, which eventually evolved into PhysioNet, a multiparameter database for physiological signals. These databases have been utilized in the development of biomedical signal processing over the past several decades. The next phase in the evolution of patient monitoring is interoperability, using multiple inputs from multiple devices to achieve better patient care. This can be accomplished through standards, such as IHE PCD, which will allow medical devices and systems to pass vital health information, seamlessly. John Rhoads continued to stress the importance for standards-based communications in addition to the importance of clinical engineering collaboration. Clinical engineers are in a position to influence vendors by making their expectations known; device communication requirements can be specified in procurement documentation. Engineers can also participate in standards development.

The Symposium wrapped up with a clinical scenario panel discussion hosted by the presenters; clinical scenarios are intended to illustrate the need for development of technical solutions. The clinical scenarios discussed were related to electronic information systems and device interoperatibilty. After some initial discussion, the panel was open for questions from the audience. The common theme of the questions seemed to be concern over removing the processing of alarms offsite, alarm management, and standards development. The whole audience was engaged; the symposium was a very successful kick-off for the conference.

*Jared Ruckman*

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Purna Prasad, PhD, from Stanford University Medical Center and Lori T. Harrison RNC, MSN, of Nursing Informatics at Kaiser Permanente answer audience questions.

# More from the AAMI Conference

Both ACCE News editors attended the recent AAMI conference and Expo in Charlotte North Carolina. According to AAMI staff, attendance was very good (> 1,500), although slightly less than the record breaking attendance in San Antonio in 2011.

The education portion of the conference featured six tracks: Patient Safety, CE-IT Connectivity, Imaging, Wireless Challenges, Business and Management and the "Big Picture". Some highlights of the conference, from the editors' viewpoint, include the ACCE Symposium, wireless systems management , IT/Medical device interoperability, IEC 80001 and clinical alarms management, some of which are further summarized below.

Much has been written previously about clinical alarms but one of the more interesting presentations for me (Ted) was the presentation of a tool that measures clinical alarms (quantity and type of alarm) and allows one to perform analytics on those alarm measurements. The numbers of alarms occurring in hospital pilot tests of this new product is astounding (over 200 alarms per bed per day) and that was just for patient monitoring, not including infusion pumps and ventilators. It's no wonder that the clinical and technical healthcare communities feel that alarm accuracy and nuisance alarms are still an issue and that, according to George Mills of the Joint Commission, alarms are once again going to be added to their National Patient Safety goals in the near future.

By a rough estimate, IT-related topics make up about 50% of the conference with several keynotes and education tracks on those subjects. One significant challenge in the IT "space" is wireless and there were several presentations about proprietary wireless solutions (e.g. WMTS) vs 802.11; methodologies for using WiFi for medical telemetry (e.g. 802.11a channel allocation, SSID management) and much more.

The overarching management of network connected medical devices in a safe, effective and secure manner can be accomplished by implementing the IEC 80001 voluntary standard. IEC 80001 implementation involves determining the risk associated with any IT network connected medical device using the IT network, wired or wireless. This is a relatively new standard published in 2010, and implementation guidelines are in the process of being published. If you have not yet implemented IEC 80001, plan to do that in the next few years.


The ACCE booth, coordinated by ACCE Secretariat Suly Chi (far left) was a popular meeting place at the AAMI exhibit hall. Joining Suly are: (l to r) : Izabella Gieras, Julio Huerta, Paul Sherman, Brit Berek (seated), George Mills, Al Levenson

Earlier this year the Center for Medicaid and Medicare Services (CMS) confirmed its position that scheduled maintenance on medical devices must be performed in accordance with manufacturers' recommended maintenance procedures and intervals. In addition, the scope of the items required to comply with the most strict compliance was broader under CMS (critical equipment) than Joint Commission (life support equipment). Overall, this edict by CMS has brought about great consternation within the Healthcare Technology Management (HTM) community. There are some estimates that adhering to the additional CMS criteria for scheduled maintenance could cost more than 2 billion dollars additional per year in the US. The Joint Commission recently conducted a survey to determine if any of its currently allowed risk-based maintenance strategies had resulted in adverse events due to lack of maintenance and none were found. The Joint Commission staff, ACCE and others have attempted to moderate the CMS position, with some, albeit limited, success. More meetings are scheduled soon and we are hopeful that the Joint Commission, ACCE, American Hospital Association and other participants will be able to convince CMS that the current Joint Commission standards are sufficient, and that the CMS guidelines should be eliminated and CMS should adapt the JC standards. This issue is further complicated by CMS's delegation of enforcement to each state, and in many states, that enforcement is further delegated to the counties and/or other jurisdictions. There is a consensus that the CMS change will be very costly and would not improve patient safety. All of the clinical engineers we talked to about this issue really appreciate the effort that George Mills and the Joint Commission are making in attempting to correct this costly regulatory change.

Overall it was a great conference and it was good to see old friends and make new ones. Hope to see all of you at AAMI next year (Long Beach CA), if not sooner.

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# Perspectives from ECRI Institute: Connectivity of Ventilators and Physiological Monitors

Within healthcare organizations, there is a growing focus on the connectivity between medical devices and other systems. And leading these connectivity efforts is one of the biggest opportunities for the clinical engineering profession to shine. Of particular interest is being able to connect ventilators to physiologic monitoring systems, largely because ventilators are life-critical devices. This connectivity introduces the ability to improve alarm management by allowing local ventilator alarms to sound at the physiologic monitoring system's central station and at ancillary annunciation devices like pagers. This helps clinicians to respond quickly to alarming ventilators without having to be within earshot of the ventilator. Connectivity can also allow clinicians to view ventilator alarm limits, measured values, and waveforms at the central station. It may also facilitate transmission of patient data from ventilators to electronic medical records.

To gauge the state of the technology, ECRI Institute recently tested how well seven leading physiologic monitoring systems can interface with two specific ventilator models. We found that most interfaces don't function as desired, especially in the area of alarms. Our biggest concern with many of the monitoring system-ventilator combinations we tested is the central station's failure to clearly communicate one or more high-priority ventilator alarms. In one pairing, the central station failed to issue any alarm in response to some high-priority ventilator alarms. In several other pairings, alarms were issued, but the central station displayed nondescript warning messages that didn't accurately convey the risk.

Many of the monitoring systems we tested conveyed ventilator alarms with a lower priority than is assigned by the ventilator itself; some of these systems treated several high-priority ventilator alarms as medium priority.

Other systems conveyed a single priority for all ventilator alarms independent of the priority annunciated by the ventilator. In only one system did the central station alarms consistently mirror ventilator alarms, including alarm escalation by the ventilator (i.e., the automatic change of a medium-priority alarm to high priority after a set period). Since clinicians rely on alarm priority to appropriately triage responses to emergent needs, the display of an incorrect alarm priority at the central station could increase patient risk.

ECRI Institute's report is designed to be a resource for clinical engineers and other health professionals to better select products that match their ventilator and physiologic monitoring connectivity needs – and to catch these types of safety problems before they impact patient care. It was also designed to help identify areas where the industry can do better. The study was published in the May 2012 issue of *Health Devices*. It provides details on the findings briefly highlighted above and includes tools to help clinical engineers assess connectivity on products not covered by ECRI Institute's testing. Members of ECRI Institute's SELECTPlus, Health Devices Gold, and Health Devices System programs can view our reports from their member webpages. The following link will take you right to the *Health Devices* issue after entering a valid user name and password.

https://members2.ecri.org/Components/HDJournal/Issues/hd410505.pdf

Feel free to contact me at jkeller@ecri.org if you have any questions about our connectivity study or if you would like to learn how to access this information if you don't have the necessary ECRI Institute login credentials. Jim Keller is Vice President for Health Technology Evaluation and Safety at ECRI Institute.

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# 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), and 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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# Commentary: Should Manufacturers Get the Last Word on MDRs?

A recent article[1] in the Journal of Clinical Engineering by FDA personnel on the use of FDA "Device Codes"[2] for internal CE purposes as well as MDR reporting prompted me to reexamine the MDR form 3500A[3] in terms of logical sequence, code selections and CE input.

As should be well known to ACCE members, user facilities (e.g. hospitals) are required to report device related deaths to both the manufacturer and FDA, and serious injuries to the manufacturer. In each case the manufacturer is obligated to review the user facility report, and then, if judged to be reportable under the MDR regulations, to file its own report with the FDA. Note that perhaps unfortunately, user facilities are not mandated to report malfunctions, but may if they wish under voluntary reporting or through MedSun if members. There are also other mandatory and voluntary, public and private reporting schemes.

Form 3500A, and its coding elements, are arranged such that typically the user facility fills out its applicable sections first (Sections A-F), and the manufacturer then fills out its part (Sections G and H), i.e. for a facility initiated report the facility goes first, and the manufacturer second- and perhaps more importantly-last. There is no requirement that the manufacturer's assessment be reviewed by the facility to see if the facility agrees with the manufacturer's findings. In addition the type of information solicited on the form might be viewed as undervaluing the potential role and expertise of CE in determining what was the actual cause of a device related problem.

There are narrative questions in the user facility section (F) along with the two coding elements in Block 10; Patient Code and Device Code. The former addresses what happened to the patient while the latter describes things that the device did or did not do, and only in limited instances why. An interesting code in the latter area given the current (if not endless) attention to maintenance is FDA 1563- Issues associated with lack of periodic preventative maintenance or performance assurance checks, and FDA 1564 – Issues associated with inadequate periodic preventative maintenance or performance assurance checks. There is not a question or code response for what the facility did to evaluate the device. However, the narrative block of Section B could be used to provide whatever additional information the facility feels is applicable, within the context of Describe Event or Problem.

Unlike the scope of Section F, the manufacturer is asked via the Evaluation Codes in Section H Block 6 for their Methods, Results and Conclusions. Without over-reaching the semantics, it may be telling that the manufacturer gets to "evaluate" while the facility "describes". These Results and Conclusions offer multiple opportunities for the manufacturer to "confess" (e.g. FDA 154 - Inadequate Instructions for Use), or to "blame" the facility (e.g. FDA 18 – Failure to Follow Instructions, and FDA 61 – Use Error). The facility would not in general receive these assessments back from the manufacturer, although it would appear to be good practice to request this information along with any MDR submission. By doing so the facility and CE would become aware of what the manufacturer has said about them and their practices.

*References:*

*Note: In citing the JCE reference below I hereby disclose that I am a Contributing Editor.*

*1. McCullough CE, Reed T and Kaufman-Rive D, A Tool to Analyze Medical Device Problems: The Food and Drug Administration Device Problem Codes, J of Clinical Engineering 37(2) 56-62, 2012.*

*2. FDA, Device Problem Code Hierarchy, http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/EventProblemCodes/ucm134761.htm*

*3. FDA, MDR Form 3500A, http://www.fda.gov/downloads/Safety/MedWatch/How toReport / DownloadForms/UCM082728.pdf.*

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# Treasurer's Report

ACCE has just wrapped up participation in another very successful AAMI Annual Conference! ACCE held a number of activities during the conference period and, as Treasurer, I'd like to start off by thanking the sponsors that made these events possible. Although we are an all-volunteer organization, and we do collect membership dues, these dues cover only a portion of all of the services and activities that ACCE is involved in throughout the year. I'd like to recognize the following organizations for the support they provided to our organization, and our members, through their contributions:

***Awarepoint, Philips Healthcare, Four Rivers Software Systems, Sotera Wireless***

These contributions helped make our activities at AAMI this year possible! We held a very successful annual membership meeting/reception which had an excellent turnout. The reception was a wonderful opportunity for our members to catch up with old friends and colleagues, make new business connections, receive updates on current activities of the organization, and discuss the future focus of ACCE with the organization's leaders. None of this would have been possible without the generosity of our sponsors!

I'd also like to report that ACCE is currently in the early stages of developing additional managed growth opportunities for our organization. We will not only be focused on increasing our membership ranks (as well as opportunities for our members to participate in ACCE), but even more specifically, we will be focusing on growing the services we provide. As is true for most organizations or businesses, it takes money to grow services, but we feel that this growth will result in additional revenue for the organization, which can then be used to provide greater benefit to our members! To this end, we are in the process of forming a new Finance Committee to investigate strategies for this new and exciting phase in our organizational growth. We believe that, as an organization, we have yet to tap into our full potential for providing service to our members and community!

*Colleen Ward, MS MBA*

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# International Committee Report

The following is a summary of the ACCE International Committee activities over the past six months. During this period, several members joined the group. Currently, there are 13 members in the IC: Bill Betts, Tobey Clark, Saide Calil, Mario Castaneda, Ismael Cordero, Tony Easty, Bill Gentles, Antonio Hernandez, Jennifer Jackson, Tom Judd, Frank Painter, Elliot Sloane and James Wear. The IC meets via teleconferencing on the last Friday of each month and had a face-to-face meeting during the HIMSS12 Annual Conference in Las Vegas on February 19, 2012.

The work program of the IC, the strategies to implement the mission, vision and goals, and the ongoing activities of the IC were presented to the ACCE Board during the face-to-face meeting held at the AAMI 2012 Conference in Charlotte NC, on June 2, 2012. Special mention was made to the commitment of the volunteers and the continuous support of the Board and the ACCE Secretary on advancing the IC activities. The updated version of the IC brochure "International Outreach – Supporting Clinical Engineering and Healthcare Technology Worldwide" was presented to the Board Members. The brochure was prepared for distribution at the ACCE booth in the Exhibit Hall during AAMI12. The brochure will also be available for download from the ACCE website.

One of the key activities of the IC is the advocacy and promotion of clinical engineering and healthcare technology management through the Advanced Clinical Engineering Workshops (ACEW). A "Letter of Intent" was approved by the ACCE Board and signed between the ACCE President and the President of the Universidad Don Bosco in El Salvador in order to collaborate on the implementation of a CE Master's Program. Frank Painter, with the support of Tobey Clark, will lead the project.

A "Memorandum of Understanding" was signed between ACCE and GE Healthcare for the organization and delivery of a training program for the Ministry of Health of Saudi Arabia, for their clinical engineers. Frank Painter is the leader of this program.

An ACEW will be led by Tobey Clark in November 2012 in Lima, Peru. The sponsoring organization is the Pontificia Universidad Catolica/CENGETS.

There are additional ACEW requests for workshops in Mexico, Colombia, Ecuador, India and Turkey, with the latter two in coordination with WHO.

A draft version of the "Rules and Procedure for ACCE-IC" is expected to be completed in one month. The purpose of this document is to standardize the processes for interaction with the Clinical Engineering community and ACCE international members worldwide. The document also addresses the process and steps for negotiating and implementing ACEWs.

Also, William (Bill) Gentles, PE, CCE, PhD, member of the ACCE-IC and Coordinator for the WHO/PAHO/ACCE INFRATECH: Global Internet Discussion Group was awarded with the "ACCE 2012 Antonio Hernandez International Clinical Engineering Award." Congratulations to Bill.

*Antonio Hernandez*

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# Secretary's Report

The board, committees and members were very busy preparing for the AAMI annual meeting. ACCE presented several sessions (see the Presidents report on page 1)

Many thanks to ACCE Education Chair, Ilir Kulloli, who along with his diligent work in organizing the teleconferences, organized the Clinical Engineering Symposium. Also, our secretariat, Suly Chi, went the extra mile to help organize the ACCE booth, member meeting and coordinated other events. Suly also served as our shipper by transporting booth material personally to Charlotte, NC for the event.

From the board meetings, please note that ACCE was a supporting partner with AAMI for the Health Technology Management (HTM) Week (May 20th-26th). Also, our own Antonio Hernandez and the International Committee have laid out the framework for ACCE to work with Don Bosco University in San Salvador, El Salvador, in a collaborative clinical engineering education program. Also, President-Elect Jim Keller is making progress with the Journal of Clinical Engineering for an agreement for sharing ACCE newsletter information with the Journal.

President Mario Castaneda continues to work with Jack Spears, President and CEO of TriMed Media group, for the possibility of an ACCE sponsored Leadership Summit to be held late this 2012 or in 2013. More information will be forthcoming as this effort progresses.

As always, many members of ACCE are working diligently to make our organization successful. Past president, Jennifer Jackson, is leading the nominating committee for next year's board and committee membership and welcomes those members interested in a more active participation in the organization. Judging by the numbers of candidates taking the CCE oral exam at AAMI (15 this year) and the new CCEs from last year, our organization promises to grow and prosper in the near future.

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# International Committee: Report on the World Congress of Medical Physics and Biomedical Engineering, Beijing 2012

The following is a summary of the Clinical Engineering Division (CED) activities during the World Congress of Medical Physics and Biomedical Engineering in Beijing China 2012.

The International Federation of Medical and Biological Engineering (IFMBE) has 56 national members and 6 transnational societies, including ACCE.

Every three years IFMBE holds the World Congress on Medical Physics and Biomedical Engineering in different places around the world with an average participation of around 2,000 people. This year it was held in Beijing and organized by several scientific societies from Asia with participation of about 76 countries. The participants range from teachers to researchers people doing practical work on all aspects of Biomedical Engineering and Medical Physics.

IFMBE created the Clinical Engineering Division (CED) about 1992 aiming to represent and develop Clinical Engineering activities all over the world. For the past three years ACCE's involvement includes CED's appointed chairman (Yadin David) and two co-opted members (Saide Calil and James Wear). For 2012-2015 ACCE is well represented with three elected members (Yadin David, Tony Easty and Saide Calil) and several "Collaborators". Calil was appointed as the CED chairman for the next three years showing that ACCE´s presence within CED/IFMBE is quite strong.

In past IFMBE events, the participation of ACCE members was quite limited to two, at most three. This year however, at least 6 ACCE members (North and South America) presented papers and mini symposiums as well as, chairing scientific sessions. I see this as a very good move to strengthen the cooperation between CED/IFMBE and ACCE.

IFMBE is an international organization with a direct and official representation with the World Health Organization (WHO). This makes IFMBE an official gateway to world-wide projects regarding health development (e.g. training, medical device development). In addition, IFMBE can provide financial support to projects coming from its Working Groups, committees and Divisions (such as the CED). For example, last year CED spent about fifteen thousand Euros on projects. The highlight was the translation of the Ziken books to Spanish (collection of 6 books about Clinical Engineering Management). This was one of the items on the CED "wish list" for many years. Many other projects regarding the improvement of Clinical Engineering around the world were and are being promoted and ACCE can strongly help with the development of these new projects.

The list of projects includes: 1). An update of the CE International Directory where there are about 550 profiles and email addresses of CEs from all over the world; 2). Update of the Biomedical Engineering Teaching Units directory; 3). Development of an international center for disaster preparedness; 4). Clinical Engineering international certification; 5). Continuation of the CED news; 6). Creation of the Clinical Engineering-Health Technology Assessment web journal and 7). Translation of the Ziken Collection into other languages.

The Developing Country Working Group, also within IFMBE's structure, is willing to develop a project with CED to train CE's in developing countries in Africa. Such projects, financed by IFMBE, can have a direct involvement with ACCE due to its vast experience in providing Advanced Clinical Engineering Workshops (ACEWs). These projects are all of high importance to the WHO.

Also, recent modifications introduced in the IFMBE organizational structure make the CED chairman a permanent chair in IFMBE's Administrative Council (AC/IFMBE). Further increasing the importance of CED's role.

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# ACEW Participant on His Way to be a CE

Avinash Konkani was one of the 100 class members at the 2009 Advanced Clinical Engineering Workshop (ACEW) in Thiruvananthapuram, Kerala, India. The ACEW was held at the Sree Chitra Tirunal Institute for Medical Sciences and Technology and coordinated locally by Dr. Niranjan Khambete and here in the U.S by Frank Painter of the University of Connecticut.

Avinash earned his bachelor's degree in Biomedical Engineering at Karnatak University in Dharwad, India. When he first came to the US, he attended Wright State University in Ohio earning his master's degree in Biomedical Engineering with an emphasis on Human Factors. After returning to India, he worked at the KLE Hospital in Belgaum and was an Assistant Professor at the Trident Academy of Technology. He applied to and was accepted at Oakland University in Rochester, MI and is now a Ph.D. candidate in Systems Engineering with specialization in Application of Human Factors Engineering. His faculty advisor is Barbara Oakley and Tom Bauld is on his thesis committee. He brought his wife Shilpa and his baby daughter, Khushi to be with him while he is working on his Ph.D...

He plans to be a Human Factors Engineer in the area of patient safety and is currently concentrating on the problem of clinical alarms, focusing on reduction of noise in the ICU environment and also, the contribution of clinical alarms to the noise environment. He has published one paper, "Noise in hospital intensive care units-a critical review of a critical topic" in the "Journal of Critical Care (JCC)" and a second one, "A Review of Medical Device Alarm Management: Paving the Way towards Reducing Hospital Noise" co-authored by Barbara Oakley and Tom Bauld has been accepted in the AAMI Journal, Biomedical Instrumentation and Technology (BIT). Avinash is working with nurses in intensive care units at William Beaumont Hospital in Royal Oak, MI.

He is a prolific communicator with his colleagues in India as well as his new friends in

*(Continued on page 9)*

# Healthcare Technology Foundation News

HTF
HealthcareTechnology
FOUNDATION

Improve healthcare delivery outcomes by promoting the development,

application and support of safe and effective healthcare technologies.

The Healthcare Technology Foundation (HTF) annual meeting was held following the AAMI Annual meeting on Tuesday, June 5th. Mary Logan, President, and Leah Lough, Executive Vice President of AAMI were present at the meeting to discuss the joint HTF/AAMI project, *"Tools for Managing Integrated Technology Risk in Healthcare Delivery Organizations"*. The project will focus on the development, publishing and delivery of instructional materials and activities for distance learning and face-to-face training on the essential skills and competencies needed by clinical engineers to practically apply system risk management (like IEC 80001) to manage the life cycle of networked medical technologies within their healthcare delivery organization. Mary and Leah stated that AAMI's future activities will have additional emphasis on education and training through various delivery methods so the topic introduced by HTF will have strong relevance.

The project will be led by Yadin David with Marcia Wylie, Ted Cohen, and other HTF board members as part of the advisory group. HTF is actively seeking ACCE members to be contributing participants in this project.

Future planning discussions included the development of projects focused on supporting technology in the home. The Patient Safety and Education brochures and information sources are an example of this which the group agreed should be continued along with the clinical alarms improvement initiative. In general, the multi-disciplinary collaborative surveys which have been undertaken and analyzed have experienced success and could be expanded to other areas. HTF's role as the home for Clinical Engineering Certification is viewed as an important activity.

The Patient Safety and Education group led by James Wear and Jim Keller introduced the latest patient brochure, *"Home Ventilation: A Safety Guide for Caregivers"*, developed jointly by HTF and ECRI Institute. Jim Keller and his team authored the document which was reviewed by HTF, the American Association for Respiratory Care (AARC) and others to come out with the final document. Hardcopies will be distributed to relevant organizations. The continuing collaboration between HTF and ECRI Institute on this series of documents available in both English and Spanish has been valuable. The brochures are available at the HTF website at http://thehtf.org/patient.asp.

The HTF Clinical Alarms improvement initiative started in 2005 has been very active. In the April edition of AARC Times, a summary of the 2011 National Clinical Alarms Survey, *"What's that Sound I Hear?"* relevant to respiratory care professionals was published. Tom Bauld presented in the poster session at the May 2012 National Patient Safety Foundation (NPSF) Congress on the survey. Yadin David gave a talk on *"National Clinical Alarms Surveys – 5 years Comparison of Issues, Improvements and Priorities"* at the World Congress on Medical Physics & Biomedical Engineering in Beijing, China. Tobey Clark made a presentation on the survey citing key findings, results and recommendations at the AAMI Annual Meeting. An upcoming June 25th NPSF Webcast, *"Monitor Alarm Fatigue: Lessons Learned"*, http://www.npsfstore.com/products/Webcast:-June-25,-2012.html will be led by HTF board member, Marge Funk, and Maria Cvach. HTF organizational and board member publications, alarm improvement resources, and contemporary links and documents are found at http://thehtf.org/clinical.asp

Don't forget about HTF for your donation opportunity. We will accept them anytime and they are always tax deductible! Please visit our website: http://www.thehtf.org/

*Jennifer C. Ott, MSBME, CCE*

*secretary@the htf.org*

*Tobey Clark, MSEE, CCE*

*president@the_htf.org*

# Avinash Wins Scholarship

*(Continued from page 8)*

the US. He frequently passes along information about conferences in both biomedical engineering and human factors engineering as well as articles of interest.

Avinash is one of the two recipients of the 2012 scholarship from AAMI Foundation's Michael J. Miller Scholarship Program which will provide him needed support over the summer when he is not employed as a teaching assistant. The Scholarship was presented at the AAMI Annual Meeting in Charlotte, North Carolina. This is the third year scholarships were awarded to two students working towards careers in healthcare technology management. The other Michael J. Miller Scholarship Program award recipient is a BMET pursuing her Bachelor's degree in Biomedical Engineering.

While in Charlotte, he attended the ACCE Annual Members Meeting and reconnected with the ACEW faculty members including Binseng Wang, Tobey Clark, Steve Grimes, Bhavesh Patel and he was able to meet Frank Painter who had organized and managed the ACEW. The only faculty member not present was Joe Dyro.

Avinash says he wants to be a human factors specialist in a hospital or in the device industry. From the announcement in AAMI News, he said "I want to apply human factors in hospitals to make the working environment with medical devices so simple that risk can be reduced," he says. "Everything comes back to patient safety", which is music to my ears.

*Tom Bauld, PhD*

*VA National Center for Patient Safety*

*Thomas.Bauld@va.gov*

# The Benefits of ACCE Membership

We are fortunate to be in a healthcare area that brings technology to enhance human health, and therefore positively impacts individuals, families, and entire communities. The highest priority of the American College of Clinical Engineering (ACCE) is the well-being of the patient, and we are committed to providing information, tools, and support to promote the success of our members and of the profession.

Investing in an ACCE membership not only shows your employer your commitment to your field but ensures that you are not missing the opportunities to leverage what ACCE offers to advance your career and stay on top of your game. The annual membership fee is one of the most affordable in the healthcare technology leadership space, and in case your employer does not cover its cost, professional association fees qualify as a job-related tax deductible expense. Why would you want to miss what ACCE offers?

- Being part of a global community of professionals that includes hundreds of leaders of the largest and most prestigious healthcare organizations in the world. You would have access to an amazing collection of experiences from people that deal with similar challenges and opportunities every day.
- Making connections with operational and thought leaders in the CE field. For instance, the opportunity to connect with other people at the ACCE membership meetings and award ceremonies at the HIMSS and AAMI national conventions. Three international and six US awards were given at AAMI 2012 ACCE meeting to recognize outstanding organizations, professionals, and students, for their contributions to the profession and thereby contributions to enhancing the health of their communities.
- Staying current on the relevant hot issues, business requirements and trends, and new healthcare technologies.
- In 2012 ACCE delivered two national symposia. One presented at the annual meeting of the Healthcare Information and Management Systems Society (HIMSS) -- "Critical Ingredients for Medical Device Connectivity," and the second to be at AAMI's annual meeting --"Clinical Engineering and Health Technology Management impact on Clinical Outcomes."
- The ACCE Newsletter "ACCE News" is distributed to our members six times per year. This publication contains articles on research, strategies, philosophies, trends, and success stories in Clinical Engineering. It provides practical information useful to professionals in a variety of fields, including healthcare technology providers, IT professionals, and advocates.
- The ACCE Educational Teleconference Series is a subscription service on topics of interest to our membership. Recent and upcoming teleconferences topics include "Negotiating Service Contracts," "Risk Management for Complex Medical Devices," "Medical Device System Security," and "integration Strategy Development."
- ACCE Collaboration with other organizations such as IEEE, HIMSS, AAMI, and others co-sponsors and promotes additional educational activities of interest to our members.
- Participating in international activities such as serving as faculty or support staff for ACCE International Workshops in Health Technology Management and leadership. ACCE aligns with organizations like the World Health Organization (WHO) and the Pan-American Health Organization (PAHO) to conduct several international workshops per year in regions including Latin America and the Caribbean, the Middle East, Africa, Eastern Europe, and Asia.
- Enhancing your visibility--marketability--in the field. ACCE publishes and distributes widely articles, white papers, and other educational materials that are generated by our members.
- Improving your leadership, presentation, and communication skills. ACCE affords opportunities to its diverse membership to be part of ACCE governance and operations committees to gain skills in running organizations, and leading by influence. Further, members have the opportunity to be invited to speak at events sponsored by ACCE.
- Volunteering opportunities to give back to your professional community – an added value is that this looks great on your resume. ACCE offers opportunities to serve in committees and task forces, mentorship initiatives, and ambassadorships to other organizations.

Our profession is at the convergence of engineering and biologic sciences with clinical practice and communications. Our commitment is to help deliver the promise of technology to make health care more effective and affordable. Leverage what ACCE can offer to support your success and join now.

Sincerely,

Mario Castañeda

ACCE President

June 2012

# The View from the Penalty Box

Here we are in June, four months from the election and many of us are already tired of all the advertising that is polluting the airways and publications often not positive messages but negative ones. As Clinical Engineers we get enough negative input in our daily responsibilities so we do not need more coming at us from politicians, many of whom are contributing to the problems in healthcare by not listening to those of us in healthcare that know the problems. Too many people think that for good care you need to go to a big teaching hospital but data shows that better care is very often closer to home in the local community hospital. Plus the cost is less. I have been saying this for many years and I still believe it, "most hospitals have no idea what their true cost per procedure is". All patient charges are based on what Medicare will pay not on costs. Until the industry moves to true cost determinations we will continue to have the most costly and least responsive healthcare system in the developed world. How can we be 26th or less in the world in infant mortality? Why do we rank so low in life expectancy? Maybe if our leaders in politics learned the facts and not the fluff put out by so many sources on how great our healthcare is we could get better healthcare and reduce costs. This will probably only happen if the Cubs win the World Series.

For many years our profession has been working to keep costs down by helping the clinical staff select the best equipment for their needs, maintain that equipment to the high standards of our profession and very letting people know what we do, why we are so keyed into costs and service and why we avoid the spotlight of getting things done quickly without adversely effecting patient care. We need to better communicate with everyone in the medical field and the politicians that we are essential to the cost containment process.

As a profession we have spent the last 20 years sitting on the sideline waiting for an agreement on interconnecting medical devices. I am not sure if we are any closer today than we were back then, but technology sure has changed and getting interconnecting to work should be simple, just look at the iPad and all the smart phones, widely used in hospitals but not interconnected in most cases with the medical records or business offices. Yet a local hospital in this area has a system where all the physicians have access to imaging and lab results of outpatients, but the inpatient sharing is more limited, and I have never gotten a clear answer why these limitations exist. We know the sharing can be done, we know that it is cost effective, we know that the information is accurate and repeatable but for some reason we can't seem to take that final step of full interconnections within the hospital, physician's offices and outpatient clinics. Why can't we get it done? Why do so many engineering groups discourage the use of wireless media? The facts, that I have seen, indicate that these devices are safe so use them to get better patient care.

There are so many problems with healthcare that it is close to impossible to get people to agree upon what we need to tackle next. Our regulatory agencies FDA, CMS, insurance companies, medical associations and even ourselves need to get our acts together and start making progress. If we do not make progress in our areas of expertise healthcare will flounder for years to come and will run out of funds long before the projected dates by the "experts". Maybe everyone is watching the Mayan calendar to see if we need to worry or not about the future.

Some other items that we need to discuss include why do we spend so much time and effort on sports, both professional and college? Just think that the Roman's had cage fighting, but we have progressed to taking away the swords and given the fighters gloves, is that progress or what and look what happen to that culture. We have a Congress that cannot agree on solving any problems that we are facing, mostly not because they don't have the strength of will to make a decision and fear that those that do not agree with them will filibuster and no progress will be made. So nothing gets done. We have financial "experts" losing billions from our investments and no one goes to jail. We have cities spending millions on snow removal during a winter where we had almost no snow, but none of the politicians go to jail. Maybe this is why I enjoyed playing hockey so much because when frustrated I could go out and beat the crap out of someone, serve my five minutes and feel so much better.

I am just waiting for my next shift.

Have a great summer

*Dave Harrington*

*dave@sbttech.com*

# New Members

Please welcome our newest members, approved by the ACCE Board of Directors on May 22, 2012:

**Individual Members:**

**Emily Salmon -** Biomedical Engineer at Veterans Health Administration, AR

**Randall Bardwell -** R&D Product Manager at Lumedx Corp, WA

**Prasad Purna -** Director at Stanford University Medical Center, CA

**Edwin Sulima Gonzales -** Med Equip Eng at Arabian Gulf University, Bahrain

**John Lu -** Biomedical and Clinical Engineering at Tuscaloosa VA Medical Center, AL

**William Idrovo -** Biomedical Eng at Baptist Health (South Miami Hospital), FL

*James Wear*

*Chair, Membership Committee*

*wearjam@cswnet.com*

# ACCE - CCE Study Course - Teleconference Series

**This course will help prepare you for the CCE exam (next CCE exam will be held on November 3, 2012)**

**CCE Prep course registration deadline: July 31, 2012**

**10 sessions: August 15 through October 17, 2012 (WED, 12:00 pm-1:00 pm, Eastern Time)**

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

**Cost: $450.00 (ACCE member) $495.00 (Non Members)**

**To register: send registration form to secretariat@accenet.org**

**Registration form can be downloaded from ACCE website: http://accenet.org/default.asp?page=news&section=teleconference#ccetele**

**Session descriptions:**

August 15, 2012 – Technology Management -1

August 22, 2012 – Technology Management -2

August 29, 2012 – Technology Management-3

September 5, 2012 – Service Delivery Management -1

September 12, 2012 – Service Delivery Management - 2

September 19, 2012 – Product Development & Facilities Management

September 26, 2012 –Risk Management/Safety

October 3, 2012 – Education of Others

October 10, 2012 – IT/Telecommunications

October 17, 2012 - General Management

**Cost: _____ $450.00 (ACCE member) _____ $495.00 (Non Members)**

ACCE

AMERICAN COLLEGE OF CLINICAL ENGINEERING

## ACCE Mission

1. To establish a standard of competence and to promote excellence in Clinical Engineering Practice
2. To promote safe and effective application of Science and Technology to patient care
3. To define the body of knowledge on which the profession is based
4. To represent the professional interests of Clinical Engineers

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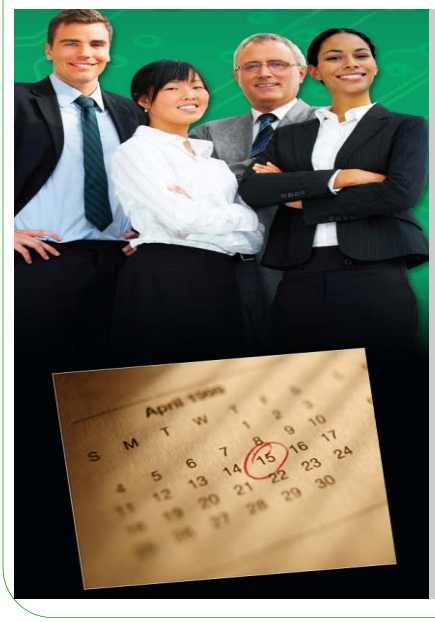
## Journal of Clinical Engineering – Call for Papers

The Journal of Clinical Engineering, which prints the ACCE News in each issue, is interested in papers from you. If you have an urge to write, and good clinical engineering activities or thoughts to share, please consider JCE as one of your outlets. One type of article not seen in a while is the Department Overview which presents how your department is structured and how it performs its functions. Shorter "Perspective" pieces are also welcome. You can discuss manuscript ideas with fellow member William Hyman, who is one of the editors of JCE. He can be reached at w-hyman@tamu.edu. Completed manuscripts can be sent to William or Michael Leven-Epstein at lecomm1@aol.com



## Calendar

**October 3-5, 2012**
MD Expo, Fall 2012
Las Vegas, NV

**November 1-2, 2012**
Fourth Annual Medical Device Connectivity Conference
Boston, Mass

**March 3-7, 2013**
HIMSS 2013
New Orleans, LA

**June 1-3, 2013**
AAMI 2013
Long Beach, CA

**ACCE Teleconferences:**

See http://accenet.org/ for information about ACCE's teleconference series.

**We are on the Web:**

**www.accenet.org**