

ACCE News

**Newsletter of the
American College of Clinical Engineering**

**Volume 13, Issue 5 :
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2003**

UCONN Graduates Five New MS Clinical Engineers



Left to Right: Zack DeLemos, Umair Siddiqui, Megan Friel, Steve Merritt, and Ryan Felber

Five new clinical engineers will graduate from the University of Connecticut (*Go Huskies!*) with a MS in Biomedical Engineering. They will have completed the Clinical Engineering Internship Program in May 2004. These second year students, along with seven first year students are required to work as a clinical engineer 20 hours per week for two years under the guidance of the CE department director in the hospital in which

they reside. Internship hospitals include Hartford Hospital, UConn Health Center, Baystate Health Systems, Connecticut VA Hospital, UMass Memorial Medical Center and St. Francis Medical Center, all primarily based in central CT and MA. They also take two graduate engineering courses per semester and are required to do a thesis on a clinical engineering or biomedical engineering topic. Graduate courses include

"Clinical Engineering Fundamentals", Engineering Problems in the Hospital", "Human Error and Medical Device Accidents" and "Medical Instrumentation in the Hospital". For their contact information or job leads and suggestions please call or contact the program director, Frank Painter at 203-261-8340 or frpainter@earthlink.net.

- Frank Painter
(frpainter@earthlink.net)

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President's Message: 200 and Counting

At our Annual Meeting in June, I set forth some goals and predictions. As we reach the second quarter of our year, one of those goals is in sight. With 11 new members this month, we have already hit 200. By the end of the calendar year, we will have achieved a new record.



Ray Zambuto is President of Technology in Medicine in Holliston, MA and President of ACCE

ACCE's growth is reflective of increased activity in Clinical Engineering, nation-wide. Everyone I know is busy and under pressure to do more with less. But the "more" is to deal with higher impact, less comfortable areas of clinical engineering practice. This is a good thing!

When we look at the paradigm shift under way, it becomes apparent that clinical engineering does indeed have a role to play in the future. Defining that role is still problematic since we tend to fall back on what is familiar (and on what we can more easily get paid for). But these high im-

portant areas of clinical engineering are challenging us: to expand our potential; to depart from a quarter-century of practice centered on technology support, back to the problem solving roots of the profession; to walk on the outskirts - the places that lie between different disciplines and views.

Patient safety/medical errors, for example is a higher profile area today than 3-4 years ago. As it continues to evolve, it will be viewed through many different colored glasses.

Traditional healthcare approaches to patient safety have revolved around one dimensional rules like "Wash your hands to prevent infections", or "Key your anesthesia hoses to prevent cross connecting."

Engineers consider patient safety as a system of policies, procedures and equipment which can be analyzed (the Swiss cheese model of overlapping layers of safety, root-cause analysis, or Healthcare Failure Mode and Effect Analysis) to figure out what happened or what could happen.

Information Technology sees patient safety as a knowledge management issue, analyzing the possibilities and building in "hard stops" or "guidance" to a medication system, for example.

Where is the "cosmic string theory" that ties these approaches into one unified theorem? Does it exist? Is it worth finding?

Even if we have the answer, how do we achieve buy-in by the various communities at a time when the delivery system strains even the doctor patient relationship? This is a time when despite the availability of tools for scheduling appointments or active collaboration between patients and physicians, it isn't happening. It's a time when the malpractice "sword of Damocles" continues to work against openness in reporting. And it's a time when the projected knowledge half-life of medical knowledge is down to 3.5 years with no universal infrastructure for managing the new half-life of medical knowledge is down to 3.5 years with no tools for managing the turnover. Why are we surprised to find that medical errors are so high, let alone errors in disease management?

These questions probe much higher impact areas than electrical safety or pm completion rates, but they are well within the province of clinical engineering involvement. Clinical engineers who want to be on the cutting edge will learn to spend less time in the safe and familiar areas. Those familiar areas need tending, but there is an ocean full of these higher impact areas crying out for attention. What would happen if our 200 Clinical Engineers started fishing in that sea?

Happy Holidays to All,

Ray

- Ray Zambuto (rzambuto@techmed.com)

ACCE Board Meeting Highlights *Aug Oct 2003*

President Ray Zambuto said he wants to build on the momentum started over the last 3 years. "We've been building the organization, and we're starting to see the fruits of that work." He highlighted especially the huge success of the 2003 ACCE Symposium, coordinated by Ted Cohen, at the AAMI Annual Meeting; the considerable progress made on the Certification Program; the work that we are doing with the IHE to bring our relationships closer to HIMSS and the IT community; and the work which has been carried out, largely by Steve Grimes, to publish a cooperative ACCE-ECRI HIPAA compliance guide for medical technology management.

Ray discussed strategic planning issues, including initiatives with various other professional organizations (e.g. AAMI, HIMSS, ASHE, IEEE-EMBS). These initiatives are showing positive results as ACCE was invited to participate in the ASHE Annual meeting in July, and we were well received as four members presented educational sessions: Ray Zambuto, Jim Keller, Matt Baretich and Steve Grimes. Additionally, we have been invited to lead a Clinical Engineering round table discussion on the

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

"Integration of the Healthcare Enterprise" (IHE) from a clinical engineers' perspective at the upcoming HIMSS annual meeting in February 2004. ACCE continues to discuss, with AAMI, ways in which both organizations can cooperate to reach out to regional BMET societies; and we have agreed to once again be an educational contributor at the 2004 AAMI Meeting in Boston where the ACCE will present a shortened, 4-hour Symposium. Topics under consideration are: Patient Safety, IHE, and HIPAA compliance.

On the International front under the auspices of PAHO, the ACCE presented Advanced Clinical Engineering Workshops in the Caribbean in Dominica

and Santiago, Chile, and we conducted a short certification exam review course for the Mexican Board of Examiners and the IEEE in Cancun. We are currently involved in a large project with International Aid to help train clinical engineers with classroom and hands on training in 10 large hospitals in Bosnia.

The Membership Committee presented 9 applications for new members, which were approved by the Board, 7 Individual and 2 Candidate status. Additionally, the two winners of the 2003 Devteq Challenge Award were approved for one-year Individual memberships.

- Ron Baumann (rbaumann@ahss.com)

ACCE News

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ACCE News is a benefit of ACCE membership; nonmembers may subscribe for \$60. To subscribe call (518) 441-5617

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HIPAA Update

On November 17, URAC, NIST and WEDI will co-sponsor a conference on *Healthcare Information Security* in Washington DC.. The afternoon session will address the Security of Medical Devices. The session panel will

include Dennis Seymour CISSP (Project Manager of the Health Information Security Division, VA Office of Cyber & Information Security) and Stephen Grimes, (ACCE's HIPAA Task Force Chair). discussing the chal-

lenges of addressing data security associated with medical devices.

- Steve Grimes (slgrimes@nycap.rr.com)



Certification News

CCE Exam to be given on November 22 in 30 Cities Across the US

The CCE exam is being offered in thirty cities across the country. It is being administered by Professional Testing Corporation (PTC). PTC assisted the US CE Board of examiners in developing an exam that will test qualified clinical engineers on the body of knowledge of clinical engineering as established by ACCE in an extensive survey taken of the CE community in February 2001. PTC also assisted in analyzing each question to ensure that only psychometrically appropriate (e.g., well written, unambiguous, not multiple answers, etc.) questions will be on the test. The Board of Examiners focused on making sure the questions were technically correct and appropriate. PTC then created an exam for the November 22 test by selecting questions from the question bank developed by the CE Board. The exam will have the same mix of questions in CE subjects as the body of knowl-

edge survey showed the CE's job required. Seven candidates have been approved to take the exam. This exam differs extensively from the previous exam because it tests what clinical engineers need to know in their daily jobs, rather than test academic knowledge obtained in an engineering degree program.

Recognition and Listing of Previously Certified Clinical Engineers

The application to have your ICC issued CCE credential recognized by the newly formed Healthcare Technology Certification Commission (HTCC) are available on the web at www.accenet.org. The deadline for submitting the application has been extended past November 1, 2003. If you are a CCE and have not submitted your application for recognition, you must do so immediately. If you know a CCE, remind them there are only weeks left to accomplish this important task. The application is simple and reasonable if



Frank Painter is a Clinical Engineering Consultant with Technology Management Consultants in Trumbull, CT and ACCE's Certification Committee Chair

you are a practicing CE. Proof of previous certification as a CE is also required (i.e., a copy of the CCE certificate or acceptance letter from the ICC). There is no fee required at the time of application. The entire process should take less than one hour. If you have questions e-mail them to certification@accenet.org. The application form has complete information on how to apply.

- Frank Painter (frpainter@earthlink.com)

Perspectives from ECRI:

Viruses and Worms in Computer-Based Medical Technology

Over the past several months ECRI has been receiving a number of reports of computer worms and viruses affecting their networked computer-based medical equipment. The most recent reports were associated with the “Blaster”, “Welchia”, and “Sobig” worms that assaulted computer networks worldwide. These particular worms have the potential to affect any product that runs on a Windows-based operating system, such as Windows XP or Windows NT, and that is Web enabled or e-mail capable or interfaced to a Web-enabled or e-mail-capable system. Therefore, a broad range of medical devices and systems, including physiologic monitoring systems, picture archiving and communication systems, and other radiologic systems, are susceptible to these attacks.

An obvious solution to this problem is to make sure that operating system and security software used on networked medical equipment are updated regularly. However, ECRI has found that updates and patches, especially for medical device operating systems, may introduce new problems because of site-specific circumstances or the medical device supplier's use of custom versions of operating systems. In at least one recent case, an equipment supplier cautioned a facility that

its equipment was running a custom version of Windows XP. In this case, applying the Microsoft updates on the equipment would compromise functionality of the equipment. Therefore, users need to check the manufacturer's specific recommendations on each potentially affected product. Even if there is no known customization or incompatibility, when possible, system performance and function should be tested on a separate system before installation on the full system.

As more and more medical devices and systems are designed to include computer-based technology and are designed to connect to computer networks, the types of problems discussed above will grow at tremendous pace. Clinical engineers need to play a critical role in managing this problem. This includes doing things like maintaining a complete list of all vulnerable medical devices such as Web-enabled or e-mail-capable equipment or systems, as well as those that are interfaced with other Web-enabled or e-mail-capable systems. Stand-alone devices are at a lower risk for virus and worm attacks, since the mode of infection would only be through removable media (e.g., floppy disks) rather than through a network, but they do need to be addressed. Another key responsibility for clinical engineers should be to assess the risks associated with installing patches and upgrades



Jim Keller is Director of ECRI's Health Devices Group, ECRI, and a Member at Large for ACCE's Board

on medical devices and systems. ECRI recently published a Special Report in the September 5, 2003 issue of *Health Devices Alerts Action Items* with some general recommendations on dealing with viruses and worms with Networked Medical Equipment. We also published a report in the September 12, 2003 issue of *Health Devices Alerts Action Items* about a specific problem with GE Medical Systems products running Windows NT 4.0 operating systems that could be potentially affected by the W32/Blaster worm. Feel free to contact me (jkeller@ecri.org or (610) 825-6000, ext. 5279) if you would like information on how to access these ECRI's articles or if you would like to discuss this issue. Members of ECRI's Health Devices and SELECTplus programs can view this information online at www.ecri.org.

- Jim Keller (jkeller@ecri.org)

Exciting Developments with IEEE-EMBS for ACCE

ACCE played a major role at the IEEE Engineering in Medicine and Biology Society (EMBS) 25th annual international conference in Cancun, Mexico from September 16-21. In the published Proceedings for the conference, Dr. John Clark, the EMBS President complimented ACCE for its partnership and support, and he expressed his appreciation for helping EMBS ensure that it includes practicing engineers. He also mentioned the recent Sister-Society Agreement between us, which allows ACCE members to purchase EMBS publications and attend their conferences at the discounted EMBS member rates. More information on available products is available at the EMBS web site, and ACCE members are invited to actively take advantage of this program. A special recognition was also given by Dr. Clark to our fine colleagues in CORAL, the Latin American Biomedical and Clinical Engineering society. We owe them our gratitude for their fantastic leadership and participation in Cancun, and look forward to future collaborations.

In Cancun, an enthusiastic team of Clinical Engineers (Yadin David, Antonio Hernandez, Ricardo Silva, Elliot Sloane, and Adriana Velazquez) presented a 2-day bilingual (Spanish-English) Clinical Engineering Certification Advanced Clinical Engineering Workshop for nearly 30 Latin American partici-

pants. Following this Workshop, the ACCE team organized and delivered two days of stimulating technical sessions during the Clinical Engineering Track at the conference. The sessions were very well attended, they and generated much lively discussion. The Pan American Health Organization and Siemens Corporation deserve commendations for their support, too, as they provided special grants to help make these educational events successful.

More activities are already being planned for the coming year: Yadin David has been appointed as the chair of the EMBS Industry Committee, and Elliot Sloane and is serving as co-chair of the EMBS CE Liaison Committee. Dr. Clark has expressed his enthusiastic support for ACCE's new Certification program, and he has encouraged ACCE to run

a Certification Review program in the September 2004 EMBS conference in San Francisco. David and Sloane have also been invited to co-chair a Clinical Engineering Track at the upcoming that conference, so the San Francisco EMBS meeting is shaping up to be another exciting 2004 event for clinical engineers.

All ACCE members are invited to actively participate in these joint ACCE-EMBS activities, and we are eager to receive your input. Stay tuned for further developments!

Elliot B. Sloane
elliott.sloane@villanova.edu



The ACCE Board and Committee Chairs

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Education Committee Chair.....	James Wear
Medical Errors Task Force Chair	Elliot Sloane
PM Task Force Co-Chairs	Malcolm Ridgway & Matt Baretich
Nominations Committee Chair	Elliot Sloane
Secretariat	Matt Baretich

From the Penalty Box:

What do Cub's, Red Sox fans and Clinical Engineer's have in common?

All are saying "we get no respect," "it was someone else's fault" and ... "wait until next year". Well I sincerely hope that clinical engineers find "next year" quicker than the Cubs and Red Sox have.

In traveling to various parts of the country to teach at seminars I get to hear about everyone's woes. How the hospitals don't understand what they do, their small budgets lack of space and not being part of the technology purchasing planning. This is mirrored in the emails that come in from both ACCE members and others. It is not uncommon to hear the gloom and doom that our profession is dying out. While this may be a minority position those pushing the demise of clinical engineering are getting others think about their career choices.

Take a look at what you are presently doing for your clients, be it a hospital, manufacturer, service company or consulting. How much of what the client wants and expects from you is different than what you thought the field was when you entered it? Those who started in the field as "instrument makers" are about all retired. Those who started in the field with leakage meters and PM programs based on months, and still feel that is clinical engineering, need to retire as the profession has passed you by. Those who started in the field with computer programs to document everything need to look at what you have documented and figure out why you did all the documentation and what to

do with that documentation. EMC who is a world leader in data storage states that 70% of the stored data is never looked at once it is stored and that 99% of the data archived is never looked at again. If we don't use it why document it? Granted EMC only has about a 70% market share on electronic storage of data so maybe their customers are different than those in clinical engineering functions. Those with open minds are finding clinical engineering both rewarding and challenging because they look at data, repairs, evaluations and training as methods of better serving the ultimate client, the patient.

I strongly suggest that you meet with your Risk Manager and ask the following questions.

1. Where do most patient injuries occur? Beds, stretchers and wheelchairs will probably be the answer. Do we, as clinical engineers get involved with these low-tech items? Our clients get hurt on them but we don't think of them as problems.
2. What are the most common nursing errors? Probably late or wrong medications. Can we do anything about this problem?
3. What is the most common employee injury? Probably back strains lifting or moving patients, but again these are low tech and not what we do.

Next ask department heads in imaging and laboratories about their problems and many of the answers are non-equipment failures but system problems, be it water, air quality, tracking supplies, repeat tests, all of which we should be looking at instead of gathering data that is never used.

We have several members of the

ACCE that spend a lot of time working with lawyers on problems that have happened in hospitals where equipment was involved. Quite often the equipment has a minor problem that is made major by users that are not fully trained or watching what they are doing. We need our members to share that information with the rest of us so we can prevent the same problem from happening to our patients. It may cost them a little consulting money but it will help others, which is part of our ethics as a society.

In closing I would like to share a brief reflection on Al Jakiunas. We first met in the 60's when neither of us was in clinical engineering. Even then Al was very interested in teaching others. We reconnected in the late 70's and shared many discussions on how best to train, what books were available and why we had certain problems with equipment. In the 90's we traveled together to the Baltic States doing installations of equipment and setting up training programs. My last conversation with Al was about doing a program next year in Boston on distance learning programs. After almost 40 years Al still had the desire and drive to train people. He will be missed.



Dave Harrington (Dave@sbtech.com)

ACCE ADVOCACY AWARDS 2004

On behalf of the ACCE Board and the ACCE Advocacy Committee, ACCE is happy to present the ACCE Advocacy Awards criteria for 2004. The Clinical Engineering profession has many distinguished individuals that fit the award recognition. Please take few minutes to review the criteria, which are now available on the ACCE website, www.acenet.org together with a nomination form to help you recognize the individuals within your community.

Please complete your nomination form by **January 15, 2004**.

Completed nomination forms can be sent directly to Izabella Gieras, Interim Advocacy Committee chair at igieras@beaumontservices.com or regular mail as follows:

*Izabella Gieras
Beaumont Services Company, LLC
Clinical Engineering & Tech. Mgmt.
3601 W. 13 Mile Road
Royal Oak, MI 48073*

Please provide the nominee's name and contact information, type of an award he/she is being nominated for and corresponding supportive information.

Thank you for your contributions!



Izabella Gieras is a Clinical Engineer with Beaumont Hospitals in the Greater Detroit, MI area and President-Elect of ACCE

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Advanced Concepts of Digital Imaging Maintenance
- Level IV
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Systems - Levels I-III

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ACCE Teleconference Schedule

November 20, 2003

HIPAA's Final Security Rule

Stephen L. Grimes

HIPAA's Security Rule will have a major impact on the future of biomedical technology programs. Learn how the CE community needs to adopt a new mindset in order to effectively address data security issues centered on the need to preserve the integrity, availability and confidentiality of health data maintained or transmitted by biomedical devices and systems.

December 18, 2003

Attributes Sampling Applied to Clinical Equipment Inspections

Binseng Wang

Hospitals can now use statistical sampling techniques to manage

equipment under the new JCAHO standards. The sampling technique used for over 50 years in industrial production will be reviewed as a tool to optimize use of limited resources.

January 15, 2004

Integrating the Healthcare Enterprise (IHE)

Joyce Sensmeier

The IHE initiative sponsored by the Healthcare Information and Management Systems Society (HIMSS) and the Radiological Society of North America (RSNA), promotes the coordinated use of established technical communication standards (e.g. DICOM and HL-7) to address specific medical systems integration needs. Learn more

about this initiative, upcoming projects and see examples of how this initiative has been applied.

February 19, 2004

Clinical Engineering and Healthcare Facilities Engineering-Engineering for Patient Care

Matthew Baretich

Clinical Engineering and Facilities Engineering have historically had very different organizational cultures. However, there are also many parallels and many opportunities for cooperation in healthcare facility design and operation. This presentation is about ways to create synergy and to apply our engineering skills more broadly for improved patient care.

ACCE Student Paper Competition

Inspired by the recognition of the student paper/presentation at AAMI 2002 in Minneapolis, over the past few months, the ACCE Advocacy Committee has been reviewing five student papers featured in various professional journals. After an extensive review process and a slew of excellent papers, the committee decided on a winner!

The committee would like to congratulate Ms. Kristi Hinner, a junior in the Biomedical Engineering program at the University of Wisconsin, Madison for being awarded the best ACCE Student Paper for 2003. Ms.

Hinner co-authored a peer-reviewed paper entitled "Method for Reducing Pump Induced ECG Artifact" which appeared in the winter 2002 issue of the Journal of Clinical Engineering.

Ms. Hinner will be awarded a one-year ACCE membership and an inscribed certificate.

Congratulations!

The Advocacy Committee is getting ready for the Student Paper Competition for 2004 and would greatly appreciate your nominations. The nomination form is available on the ACCE website at www.accenet.org. Please complete your nomina-

tion form by **January 15, 2004**.

Completed nomination forms can be sent directly to Izabella Gieras, Interim Advocacy Committee chair at

igieras@beaumontservices.com or regular mail as follows:

*Izabella Gieras
Beaumont Services Company, LLC
Clinical Engineering & Tech. Mgmt.
3601 W. 13 Mile Road
Royal Oak, MI 48073*

Please provide the nominee's name, contact information and corresponding supportive information.

- Izabella Gieras
(IGieras@beaumontservices.com)



Attention Certified Clinical Engineers!!

The Clinical Engineering Certification Program administered by the United States Board of Examiners for Clinical Engineering will recognize the certification of clinical engineers who were previously certified under the program suspended by AAMI and who have remained in professional practice.

Applications are now available to apply for listing with the new program.

Practicing Clinical Engineers who are currently renewed under the suspended ICC / AAMI program, or whose AAMI renewal previously lapsed are eligible to apply for recognition under the new program until October 31, 2003.

To obtain an application for recognition under the new program, or to obtain more information contact ACCE at: certification@accenet.org or (610) 825-6067

<p>The Advocacy Committee needs a  CHAIR!</p> <p> You need a successful CAREER</p> <p>Solution Become a LEADER in our profession</p>	<ul style="list-style-type: none">✓ Network and develop skills as you lead a team of approximately 15 members✓ Promote our profession to students✓ Initiate mutually beneficial relationships with other professional organizations <p>Contact: Izabella Gieras E-mail: igieras@bsc-services.com Phone: 248-551-0549</p>
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Calendar of Events

November 17, 2003

Healthcare Information Security: Setting the Agenda
Sponsored by URAC, NIST, WEDI
Washington, DC

November 19, 2003

Virtual Patient Safety: Worms, Viruses and other Threats to Computer-Based Medical Technology
ECRI Audio Conference

February 22-26, 2004

Health Information Management and Systems Society (HIMSS)
Orlando, FL

June 5-8, 2004

Association for the Advancement of Medical Instrumentation (AAMI)
Boston, MA

July 26-28, 2004

American Society of Healthcare Engineers (ASHE)
Orlando, FL

September 1-4, 2004

Institute of Electrical and Electronic Engineers – Engineering in Biology and Medicine (IEEE-EMBS)
San Francisco, CA

ACCE

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