

# ACCE News

Newsletter of the  
American College of Clinical Engineering

Volume 18, Issue 3:  
May/June

## ACCE Activities at Upcoming AAMI 2008

The following lists several of the ACCE activities at the upcoming AAMI conference in San Jose CA, May 31 to June 2.

### CE Symposium: May 31, SAM-12, Conference Center

Recent advances in human factors techniques create new opportunities in healthcare technology management. Using the principles of Human Factors in healthcare is of particular interest to technology managers since these changes dramatically change the way they procure and manage the capital for which they are responsible. Key points that the symposium will address are:

- \* The application of human factors engineering in specialty areas.
- \* The use of human factors in incident investigations.
- \* The tools available for applying human factors in technology assessment.
- \* Experience using human factors engineering in product development (manufacturer's point of view)

All talks will include the tools and education a practicing clinical engineer might need to acquire to address this type of specialization.

The speakers this year bring a wide range of experience in the field of human factors, from

writing the standards to applying the techniques:

Ed Israelski, Human Factors Program Manager at Abbott Corporation will open our symposium with his experience using human factors to design medical systems and how his expertise informs new standards for the industry.

Frank Painter of Technology Management Solutions\* and Mark Bruley from ECRI Institute\* are joining us to share the techniques they use for applying human factors to incident investigations.

Technology and workflow assessment are topics that will be covered by speakers Izabella Gieras and Brian Vargo, both of Beaumont Technology Services. Their talks will outline current practices used for assessment and how these can be used to build full-scale technology programs at your institution.

Our symposium will close with a panel discussion led by Yadin David. Yadin will open the discussion by sharing his experiences using human factors and then he will moderate a QA session with the other speakers.

This year's planning committee, Jennifer Jackson,

Tom Judd, Fred Hosea and Marcia Wylie, has been working since January to bring you this great event.

There is no additional ticket required to attend the CE Symposium, just your AAMI registration. Find out more at <http://www.aami.org>.

### ACCE Reception

Sunday, June 1, 7-9PM, Ballroom 1&2, San Jose Marriott  
301 South Market Street

Meet new ACCE members or catch up with old colleagues. ACCE is sponsoring a cocktail reception for members and friends. Come learn about upcoming events.

Jennifer Jackson, President-Elect

[jenniferljackson@yahoo.com](mailto:jenniferljackson@yahoo.com)

## Membership Renewal

If you have not already done so, please renew your ACCE membership on-line at <http://www.accenet.org> by clicking on the yellow highlighted link at the top of the homepage and logging in. You may alternately renew by mailing a check or money order to :

ACCE

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### Inside this issue:

Anatomy of a Donation	2
Co-Editor Wanted	3
ACCE in Colombia	3
President's Report	4
UConn CE Graduates	5
ACCE Foundation	6
Penalty Box	7
Engineering World Health	8
Nurse Workflow	10
CCE Review Course	11
Calendar	12

## Anatomy of a Donation

Global Assistance for Medical Equipment (GAME) has been working in Kosovo since 2004 with the Ministry of Health (MoH) in health technology management (HTM) activities.

(<http://global-medical-equipment.org>).

In the spring of 2007, Jennifer Nolan, then Manager of Biomedical Engineering, University of Michigan Hospitals (UMH), and one of many global GAME volunteers, made a donation offer of high-quality pulse oximeters to MoH. The pulse oximeters had been removed from service from UMH in May 2007, as newer technology was deployed there. Dr. Jon Askew, a US perinatologist working as an advisor to MoH in Pristina the capital city, offered to assist in appropriate distribution.

Jennifer worked with Tom Judd - GAME Leader, John Chesnut - from the non-profit group Miqet Humanitar, and others to arrange the donation of the 144 pulse oximeters complete with all accessories, manuals, disposables, etc. After a pre-New Year's week pick-up, they arrived without cost over four months later at the intended destination despite difficulties including a labor strike in a Greek port, changes in the political structure of Kosovo with resulting new MoH leadership, difficult travel by truck from Greece to Kosovo, and a number of crucial paperwork authorizations for the final border crossing. On April 11, 2008, Dr. Askew and John Chestnut delivered the pulse oximeters and supplies to the biomedical staff at the main Pristina hospital (UCCK). The devices being offered are now being distributed among various healthcare facility locations in Kosovo, as decided upon by MoH. Clinical Engineering leader Agron Boshnjaku's team at UCCK is assisting in this process.

A Google Group for GAME Kosovo has been set up to facilitate HTM activities and training there. Join us at <http://groups.google.com/group/game-kosova>.

Tom Judd

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## 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

## CCE Certification: New Applicants and Renewals

1. The next CCE exam will be given in November 2008 in 28 cities around the US. The deadline for applications is September 1, 2008. Please see the website: <http://www.acce-htf.org/certification> to view the handbook and application for this exam.
2. In 2007, ACCE released the results of the new "Body of Knowledge Survey". The US Board of Examiners for Clinical Engineering, chaired by Patrick Lynch, made adjustments in the mix of questions based on that survey. The changes are included in the 2007 CCE Handbook which is available on the ACCE-HTF website.
3. Renewal: CCE renewal is required once every three years. The CCE Renewal Handbook and Renewal Application Form can be downloaded from the CE certification website: <http://www.acce-htf.org/certification>. The renewal fee can be paid by check or by credit card on the ACCE HTF website.
4. Any questions can be directed to Cheryl Shaw, the certification program's secretariat, at [certification@acce-htf.org](mailto:certification@acce-htf.org).

## ACCE News

*ACCE News* is official newsletter of the American College of Clinical Engineering (ACCE). *ACCE News* is a benefit of ACCE membership; nonmembers may subscribe for \$60.

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# ACCE Faculty, Colombian President Speak in Bogota

The 8<sup>th</sup> Colombian Congress of the Association of Hospitals and Clinics – equivalent to the USA’s American Hospital Association – held their annual meeting in Bogota in early April in conjunction with Meditec, the largest medical technology trade show in the region. See <http://www.feriameditec.com/>. The Congress was attended by more than 1,200 hospital directors, administrators and key healthcare decision makers, mostly from Colombia but also from other Latin America Countries.

The program was coordinated by the Pan American Health Organization (PAHO), the Asociación Colombiana de Hospitales y Clínicas and the Universidad CES. Through the longstanding relationship between PAHO and ACCE, faculty for the event and educational coordination was provided by ACCE. Members Nancy Pressly, CDRH/FDA; Tom Judd, Kaiser Permanente; Antonio Hernandez, PAHO; Petr Kresta, Winnipeg Regional Health Author-

ity (Canada); Adriana Velasquez, CEN-TEC (Mexico); Francisco Acevedo, Valparaiso Naval Hospital (Chile); and Tobey Clark, Univ. of Vermont.

In addition to the ACCE faculty, Dr. Juan Valencia of Universidad CES, conference coordinator, added international faculty including: Dr. Reiner Banken, President – Healthcare Technology Assessment International (Canada); Rita Commando, President – Healthcare Architects’ Society (Argentina); Dr. Edward Blout, Joint Commission International; Dr. Mauricio Gonzalez, Director – Anesthesiology, Boston Medical Center. Other healthcare leaders from South America also spoke.

The key presenter was reserved for the end of the Congress – the participation of the President of Colombia, Dr. Alvaro Uribe in the final panel and closing ceremony. President Uribe carried on a lively discussion with the attendees after his talk focusing on how to improve the healthcare system in Colombia – and of course how to pay for it!

Needless to say, there was plenty of security for the finale.

As expressed by Dr. Luis Carlos Giraldo, Director of ACHC, almost all participants evaluated the event as “excellent” and highlighted the importance and timeliness of the topics, the knowledge of the speakers and the quality of the presentations.

The results were positive. One of the main recommendations presented was the need to organize a “Health Technology Assessment Agency” in Colombia. PAHO will collaborate with the country in this endeavor. Antonio Hernandez, PAHO’s leader of health services infrastructure and technology stated, “*This event has been by far the most remarkable activity in the series of Advanced Clinical Engineering Workshops (ACEW) since 1991. ACCE leadership and your participation in this event will always be remembered as a milestone in the strengthening of the health technology field in Colombia.*”

Tobey Clark

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Nancy Pressley meets and greets President Alvaro Uribe of Colombia (L-R: Nancy, Tom Judd, Rita Commando, Petr Kresta, Juan Valencia, President Uribe, and Juan Carlos Giraldo Valencia)

## Co-Editor Wanted

ACCE has a volunteer position open for the ACCE News co-editor or assistant editor. This position entails developing three ACCE News editions per year (every other newsletter) as well as assisting in editing each edition, including writing and editing articles, writing headlines, picture captions etc.

We would like to fill this job soon, so, if you are interested, please e-mail Jim Keller, managing editor at [jkeller@ecri.org](mailto:jkeller@ecri.org).

For additional information you may also contact ACCE news editor Ted Cohen.

Ted Cohen, ACCE News editor

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# President's Report: *New Dawning in CE*

In February 2008, ACCE held its annual meeting in conjunction with the 2008 Health Information Management and Systems Society (HIMSS) Annual Conference in Orlando February 24-28 ... the first year we did so. Based on feedback from our attending members and colleagues from the IT community, the event was a great success.

ACCE-related events kicked off on Sunday with a full-day Clinical Engineering - IT Leadership Forum that discussed the latest in various medical device integration and interoperability issues. The Forum was very well attended by clinical engineers and IT leaders ... 38% above last year's attendance and the 2<sup>nd</sup> highest attendance gain of any of the many Sunday forums (exceeded only by the CIO Leadership Forum).

On Monday evening, ACCE held its annual membership meeting, reception and awards ceremony. This provided a great opportunity for our IT colleagues to learn more of ACCE and network with the many clinical engineers in attendance. Steve Lieber, HIMSS president, stopped by and spoke to the group of how much their organization valued ACCE and the clinical engineering community's collaboration.

Tuesday morning, the CE-IT Collaboration SIG held its annual face-to-face meeting. The well attended meeting featured enthusiastic discussions of the many challenges associated with converging technologies and many ideas on the areas the CE and IT communities could be effectively collaborating.

On Wednesday morning, ACCE hosted its annual breakfast meeting. Approximately two-thirds of the crowd were from the IT community. They had come to learn more about clinical engineering and how the CE profession could help address the wave of clinical integration issues rapidly growing on their horizon. ACCE presented information on a number of relevant indus-

try initiatives our organization was either leading and heavily involved in.

Once again, this year's HIMSS conference broke records with over 28,400 attendees and 900 exhibitors. The message I consistently received from those clinical engineering colleagues who came was that the issues discussed and technology presented made this a critical conference for them and therefore one they definitely planned to include in their future schedules. It was also clear from the feedback I received from our IT colleagues that they are anxious for our collaboration and that they greatly value the knowledge, skills, enthusiasm and passion our CE community brings to the collaborative mix.

The meetings, while certainly important, were opportunities to discuss and begin collaboration on a number of issues that are likely to have a profound effect on the future of clinical engineering. These include:

- IEC 80001 (currently a draft ISO standard) titled *Application of risk management for IT networks incorporating medical devices*. If finalized and adopted, this standard could potentially rewrite and refocus the role of clinical engineering to a degree we have not seen since *electrical safety* concerns first spurred the growth of clinical engineering in the early 1970's. Recognizing the increasing prevalence of medical "systems" and networked medical devices, this draft standard proposes that the risk management processes traditionally focused on the design/manufacturing phase of the medical device life-cycle (and traditionally the responsibility of the manufacturer) now must be extended to the entire device life-cycle with the corresponding responsibility expanded to include a major role for the device owner. The draft standard goes on to define roles for new professionals including a *Medical IT integration risk manager* and an *IT network maintainer*. When examining these roles, I found they bear

a striking resemblance to the new roles many of us have been advocating for as *clinical systems engineers* and *clinical systems specialists*. ACCE has recently joined the ISO working group charged with developing and reviewing this draft so that we may insure the provider and clinical engineering communities have an effective voice in this process.

What constitutes a medical device today? In February, the FDA published a proposed rule change that would reclassify medical device data systems (MDDS) from class III (pre-market approval) to class I (general controls) and they were seeking comments on their proposal through May 8. The FDA's designation of an MDDS acknowledges that there are networks that fit the technical definition of a medical device by virtue of the fact they transport or store medical device data. Their definition of a medical device appears to include all network elements and infrastructure that transport or store medical device data ... including elements and infrastructure added by the user. Under these circumstances, must the healthcare providers also be prepared to adhere to FDA regulations that apply medical device manufacturers? What are the implications for clinical engineering's role if the proposed regulation takes effect and healthcare providers who network medical devices on their IT infrastructure fall under FDA guidelines?

Developments associated with converging healthcare technologies have now convinced many of our clinical engineering leaders of the need for a new professional in our community ... a *clinical systems engineer*. The need is sufficiently urgent and the role is sufficiently different from the roles of existing healthcare technology professionals that ACCE Healthcare Technology Foundation's Board with ACCE Board endorsement has adopted a clinical sys-

*(Continued on page 5)*

# President's Report continued

tems engineering *initiative*. This initiative will establish a panel of senior members of the clinical engineering community who will in turn identify body of practicing clinical systems engineers (CSE). The intent is to extract a "body of knowledge" from practicing CSEs (similar to what ACCE does every does every couple of years for CEs) and to use that BOK to define the clinical systems engineers' typical responsibilities, qualifications, educational curriculum and certification standards. Many of us believe this new role represents the necessary link between clinical engineering and IT professionals and that this role represents the single most significant development in clinical engineering since the profession first appeared in the late 60's and early 70's.

ACCE, AAMI and HIMSS recently signed a collaborative agreement on Clinical Engineering & IT. This new agreement acknowledges the rapidly growing confluence of medical and information technologies and the enormous synergistic impact this convergence is having on healthcare, associated technologies and processes. Recognizing the unique and extensive capabilities each of these organizations possesses and the significance CE-IT convergence represents to their respective constituents, these organizations have agreed that the benefits of working together to address a variety of CE-IT issues merited this joint agreement. In the agreement, ACCE, AAMI and HIMSS have committed to jointly examine CE-IT issues related to such areas as best practices, education, standards, white papers and certification. This agreement is likely to serve as a model for future strategic alliances formed between organizations to more effectively deal with complex issues of common interest to their members.

As you can see from above, there are fundamental changes occurring in our industry. Ultimately the key to our success in effectively addressing these

changes remains active participation of our professional community ... *specifically your participation*. Please contact me or other board or committee chairs to let us know of your interests and of those areas you would be willing to

serve. We look forward to hearing from you.

Steve Grimes

[stephen.grimes@techmed.lincofs.com](mailto:stephen.grimes@techmed.lincofs.com)



Left to right: Ray Zambuto, ACCE Past President; Jennifer Jackson, ACCE President-Elect; John Hughes, 2008 winner of the HIMSS/ACCE Synergy award and Paul Sherman, enjoy the dinner and awards ceremony at HIMSS 2008.

## UConn's Graduates More CE Students

The University of Connecticut's MS graduate program in Clinical Engineering continues its success under Frank Painter's leadership with a graduating class of nine.

Eight new students start in the Fall and will be sponsored by - Boston VA, West Haven VA, Providence VA, UConn Health Center, Baystate Health Center,

UMass Med Center, Hartford Hospital & Middlesex Hospital. The success of the program and high quality of the graduates is due to the clinical engineering directors at these hospitals who work with and supervise the students on a daily basis.

Frank Painter

[frpainter@earthlink.net](mailto:frpainter@earthlink.net)



Graduating students (L-R) and their position after graduation: Anthony Angelo - CE at National Children's Medical Center, Washington, DC; Naomi Thonakkaraparayil - CE in the IT department at St Francis Hospital, Hartford, CT; Ramakrishna Parchuri - CE at Rhode Island Hospital, Providence, RI; Abhijeet Bhat - CE at UMASS Medical Center, Worcester, MA; Ashley Reeners - CE at Buffalo VA; Ilir Kullolli - CE at Brigham & Women's, Boston; Sofia Iddir - CE/Cardiology PACS administrator at Baystate Med Center, Springfield, MA; Jessica Boyer - CE at KJWW (architects), Chicago; Greg Mierzejewski - looking for a job in September.

# ACCE Healthcare Technology Foundation Update

The following is the bimonthly report of the ACCE healthcare Technology Foundation:

## Certification Funding

Certification continues to be a critical issue with respect to the further professional recognition of clinical engineering and for bringing our profession up to the recognition standards of other healthcare professionals. It is therefore appropriate to review the financial support of the current Certification in Clinical Engineering (CCE) program.

This program is under the purview of the Healthcare Technology Certification Commission (HTCC) and the U.S. Board for Certification in Clinical Engineering (USB). The ACCE Healthcare Technology Foundation (Foundation) handles funds for these organizations and since the inception of the CCE program the Foundation has supplemented certification related income with funds donated to the Foundation from other sources, including donations from all of the Board members of the Foundation. Another important donor has been the ACCE which has earmarked net income from its international clinical engineering workshops for certification related expenses.

The ACCE certification preparation course is a separate activity that is conducted independently of the HTCC and USB. Income from this course is not devoted directly to certification but it is used by ACCE to promote certification as an important and worthy objective for clinical engineers individually and collectively. ACCE also produces the Body of Knowledge survey that is the basis for the scope and distribution of questions on the CCE written exam. Fees paid by those seeking or renewing certification are also an important and critical part of the CCE program income. Overall the

program is fiscally managed by the Foundation such that fees and other revenue sources are combined to assure financial viability.

Given the direct fees and other support, the expenses of certification are worth reviewing, especially for those paying the fees or considering donations. It is important to realize that there is only one paid individual involved in the entire process, the part-time Secretariat. The Secretariat handles all of the application, renewal, testing and scheduling logistics and paperwork. All of the other personnel involved in certification are volunteers who not only donate

their time, but also cover their own expenses, including travel for routine oral examinations, written test reviews, and the annual meetings of the HTCC and USB,

The other major expense of certification is to the Professional Testing Corporation (PTC). PTC provides direct services with respect to reviewing new written questions, maintaining the secure question bank, generating the written test from banked and new questions, screening each test for continued relevancy and accuracy, and analyzing test

*(Continued on page 9)*

## Three New CE Resources

Stay on top of up-to-date guidance with these 3 new AAMI resources:

### 1. The Electrical Safety Manual, 2008 Edition

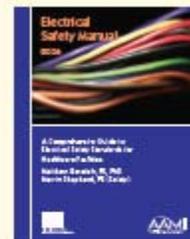
This top-selling guide contains timely information, including up-to-date standards and Joint Commission regulations. Available on CD or in print.

Order Code: ESMP (print) or ESMCD (CD).

List: \$135. AAMI members: \$85.

Buy both and save! Order code: ESMSET.

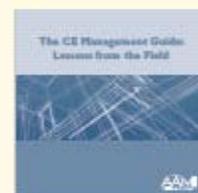
List: \$195. AAMI members: \$135.



### 2. The CE Management Guide: Lessons from the Field

With nearly 200 articles, selected by leaders in the field and gleaned from 10 years of AAMI publications, this CD is a practical reference guide and a valuable study tool for certification exams.

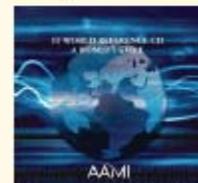
Order Code: CEMCD. List: \$135. AAMI members: \$85.



### 3. IT World Reference CD: A Biomed's Guide

This comprehensive CD includes more than 100 IT-related articles on topics ranging from training to telemedicine and security standards.

Order Code: ITCD. List: \$125. AAMI members: \$75.



To order your copies today, visit <http://marketplace.aami.org> or call 877-249-8226.

Source Code: PBLE34



# Penalty Box: Do More Execs Need Jail Time?

There are numerous opening lines in literature that could be used to describe what is happening now in the United States and in some other countries. With oil well over \$100 a barrel, and the cost to oil companies to get the oil out of the ground and transport it to a refinery at about \$12 a barrel, our cost of living has gone crazy, but the oil companies make billions and nobody goes to jail. We are seeing financial companies go under but the leadership of those companies walk away with millions in their pockets and no one goes to jail. We are spending billions on rebuilding a country that seems not to want to be rebuilt. A well known company that took huge money from the Boston area with the "Big Dig", (a \$3 billion dollar road construction that wound up costing close to \$16 billion), had a contract for a new pediatric hospital in Iraq, got it about 30% complete and walked away saying "close enough" and nobody went to jail. We have a group of physicians that "cooked the books" on elder care for close to a billion dollars and no one went to jail but our political leaders don't seem to care, just saying elect me and things will improve. To borrow a comment from Maxwell Smart, that old secret agent on TV, "Would you believe?"

These problems are also hitting the healthcare field as hospitals have seen their costs go up and their revenue not keeping pace. Now, perhaps the insurance companies will learn what cost pressures feel like since most cannot raise their premiums for some months. But, come the next fiscal year you know that rates will rise by a lot as those executives need their bonuses and perks. Too many executives don't care what their clients can afford and more people will probably drop healthcare insurance as the costs will be too great. These will descend on the "free care pool" driving up the costs of those with insurance. It has the makings of a real

problem. As Dickens wrote in the opening of the Tale of Two Cities, "It is the best of times, it is the worst of times" with the only question for many of us, is which of these is true for us?

Here in the Northeast we are experiencing a die off of bats. No one knows why but bats are dying off so quickly and our normally bad summer bug season is going to get worse, meaning more public health problems with mosquito-bourn illnesses. As in other parts of the country, the bee population is also disappearing meaning that we will harvest smaller crops of fruits and berries pushing the price up on these items. Too bad it is the bats and the bees instead of the politicians declining in number, we have far too many politicians and they all seem to have their hands in our pockets.

Now we are seeing the big players in healthcare trying to make the FDA a buffer for them so they cannot get sued when they screw up. In the last issue of the ACCE News I mentioned that the Supreme Court ruled that if the FDA approves a device the company cannot be sued if that device is found to be defective since it had been approved by the government, (FDA). Now the drug companies are trying for the same protection of no lawsuits. The problem is that they also do not want to disclose if there is a problem with one of their drugs, they only want to supply the FDA with data that supports their claims and none that may show otherwise. We are also learning that much of the supportive "research" done on the drug clinical trials was not done by the physicians publishing the articles or studies but by the companies.

So where does all this leave us clinical engineers? We are mostly trying to do more with less staff, less financial support and less time to work on problems that can be solved. But we can make a difference in healthcare if

we get involved. Our involvement is the sharing of information with our peers. We cannot rely on tests done in a lab, but need the results of real life testing in our hospitals to determine which of the various products are best for our hospital. Not every product is suited for every hospital. We need to get our inspection programs set up so that we go after problem devices and not just number of devices checked this month/quarter/year. We need to do good failure analysis on these devices and get rid of the clunkers. We need to drag the hospital administrators, politicians and unfortunately many of our own into the 21<sup>st</sup> century and get rid of the outdate policies and procedures that no long benefit patient care.

Technology might be the savior of healthcare; it can reduce costs and improve care but we as a society, (meaning ACCE); have to be the leaders and not the followers. I say down with IT, if anything they should report to us as we understand what healthcare should be.

Dave Harrington

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# Engineering World Health: A Prescription for Success

*Editor's note: This article, about new ACCE member Robert Malkin, PhD, was written by Greg Russell.*

The first sign that something might be awry at the Children's Hospital in Managua, Nicaragua, are the sheep grazing in the medical equipment repair area. A better clue, though, would be the fire that unexpectedly erupts above a patient on an operating room table. "A lot of people would be shocked if they saw some of the things that go on in this and other hospitals in Third World countries," Duke professor Robert Malkin says. "Some of the occurrences are totally unbelievable."

Dr. Malkin was so appalled by such conditions that he created a new institute that focuses on correcting problems at hospitals in economically depressed countries. The program, Engineering World Health (EWH), sends biomedical engineering students to hospitals in under-developed countries to repair and install donated medical equipment. The result has been better care facilities and in some instances, saved lives.

"When we see the people come from the EWH, we are happy because we know improvements are on the way for our hospital," says Dr. Enrique Alvarado, director of the Children's Hospital (Hospital Infantil Manuel de Jesus Rivera) in Managua. "Their work makes our hospital function better and in the process, has helped play a role in saving lives."

Children whose existence relied heavily on antiquated or non-working medical equipment now have a new life because of support monitors and other equipment installed and repaired by EWH students. Surgeons are better able to operate on patients because of upgraded medical equipment supplied by The Duke-EWH Summer Institute.. Malkin says the program is already

showing results. In one instance, he says that a 2-year-old baby named Jessica, a patient at the Children's Hospital in Managua, might not be alive today if not for Engineering World Health. Suffering from totally anomalous pulmonary venous drainage, a congenital disorder that is fatal if left untreated, Jessica was completely dependent on the program's donated, refurbished equipment during her stay at the hospital. "Thanks to our efforts, every station in the intensive care unit of the Children's Hospital now has a monitoring station," says Malkin.

The program doesn't just benefit patients either. Those who go through the summer institute receive a unique, hands-on educational experience.

"The students get extensive clinical experience, language and technical training," says Malkin. "The opportunity to spend a month in a foreign country — especially a Third World country — can be a life-changing experience." The institute is open to engineering, physics and chemistry majors from any University. In fact, there is

no maximum age for participation and many of the participants are practicing engineers or technicians. A family program with day care is available in Africa.

"This is an opportunity for me to apply my technical engineering background in an environment that benefits underprivileged children," says student Nicolle Kramer. "It makes me aware of the importance of things that I would otherwise take for granted." Malkin says a major problem at many Third World hospitals is not fixing a broken part, but having the ability to pay for a part. "One government donated an intensive care unit to the hospital in Managua, and another country donated ventilators to be used in the unit," Malkin says. "But the hospital was lacking one simple piece needed to make the ventilator work, so the facility was totally empty and not being used. The piece that was missing costs only five dollars, but to the Nicaraguans,

*(Continued on page 9)*



EWH volunteer and University of Minnesota engineering student Santhi Elayaperumal, repairs a circuit for an EWH project.

# Engineering World Health (EWH) continued

(Continued from page 8)

that is a lot of money. They just can't afford it.

"Our students arrive with the needed part and it has a huge impact even though it is a relatively small amount of money. Now the facility can be used. "Another example is light bulbs," Malkin continues. "There is a certain type of light bulb needed for surgery, but they can't afford it, so they use regular light bulbs. These bulbs can give off too much heat, sometimes resulting in a fire. The nurses have to quickly cover the patient until the fire is extinguished.

"We try to provide things as simple as light bulbs or as complex as monitoring

stations," Malkin points out. "On campus, the Duke students meet each week to work on broken equipment. We fix it, recalibrate it and get it working. It is then shipped down to the developing world where it is installed." Some Duke students are also taking a new class, Design for the Developing World, where they are designing new equipment to meet the special needs of the developing world.

Malkin first became interested in setting up the program when biomedical engineering students approached him "wanting to make a difference" in the world. Malkin says that it is easy for anyone to become involved. Because of a lack of money in the depressed areas, he says that monetary

and equipment donations are important to Engineering World Health. Information on donating can be obtained at the Web site [www.ewh.org](http://www.ewh.org) or by contacting Malkin at [robert.malkin@duke.edu](mailto:robert.malkin@duke.edu).

"The goal of every teacher is to offer a class that is so insightful and exciting that it can change a student's life," says Malkin, who holds degrees from the University of Michigan and Duke University. "This educational experience has that potential. It can open students up to an understanding of the real world and their place in that world. "I am convinced we can make a major impact," he says. "The best thing about it is that it not only provides a great educational experience, it helps serve people who are in need."

For more information about EWH, contact:

*Robert Malkin*

[robert.malkin@duke.edu](mailto:robert.malkin@duke.edu).

## Foundation continued

(Continued from page 6)

results for potentially problematic questions. The technical aspects of questions are the responsibility of the USB, and USB members work closely with PTC on question and test quality and consistency. PTC also provides valuable advice on the certification process and conducts the nationwide written test program which is facilitated by their other testing activities. Without co-scheduling the CCE written test with other PTC tests, a nationwide testing program would be prohibitively expensive and cumbersome.

The net result of reviewing income and expenses for certification is that the program is being run at minimal cost, and that it is being supported in part by donations and by HTCC and USB board members because of individual and organizational commitments to the concept and execution of certification. Since certification fees alone cannot cover all of the associated

expenses at this time, supplemental support will continue to be necessary. In addition to the Foundation, ACCE, and other donors you also have the opportunity to provide direct financial support based on your belief in the importance of the CCE designation.

Remember that donations are tax deductible, can be made "in honor of" other individuals, and that your organization may have a contribution matching program. In addition you might consider asking your employer to include the Foundation in its own corporate giving. To donate see <http://www.accefoundation.org/contributors.asp>.

*William Hyman, ScD, PE, Secretary*

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ACCE Healthcare Technology Foundation

### Advance Your Career

#### From the Comfort of Your Office

ACCE teleconference series starts from July 17, 2008



Since 1995, ACCE has been offering audio teleconferences on current and emerging topics in clinical engineering. This year's topics include 2009 Joint Commission medical equipment standards, revisions to NFPA 99, applying Reliability Centered Maintenance (RCM) techniques to equipment maintenance, certification in clinical engineering (CCE), radiation and MRI safety, fundamentals of RF/Wireless, CE/IT Collaboration—a case study in medical device interface, and much more!

A group of leading clinical engineers will speak at the next ACCE teleconference series.

The teleconference series, which consists of 10 sessions, will be held on the third Thursday of each month at noon Eastern Standard Time. Each session will last one hour, and will include a 45 to 50 minute presentation followed by 10 to 15 minutes of Q & A.

Please visit the ACCE website at [www.accenet.org](http://www.accenet.org) for more details and registration information. Inquiries about the series should be directed to [secretariat@accenet.org](mailto:secretariat@accenet.org).

Each registrant receives a CEU certificate from the University of Arkansas for Medical Sciences for each session they participate in.

# AAN Nurses Promote Workflow Improvements

The American Academy of Nursing (AAN) has developed and is making available at no cost (reference 1 below) a very interesting methodology called Technology Drill Down (TD2) which is aimed at identifying technological solutions to workflow inefficiencies. The core concept of this method is the group identification of the gaps between the way a current system operates (the workflow) and a more desirable way in which it should operate, and then identifying the existing or conceptual technology that can be used to close the gaps. While the method has a technology focus, the process also naturally identifies non-technology improvements.

It is interesting that this is not primarily a safety focused effort. While safety has become at least the buzz word driver of so many activities, there are still other reasons to do things. Efficiency is one. Staff retention is another. For Clinical Engineering, managing the use of resources, including medical equipment purchase, maintenance and repair dollars can be an essential function apart from safety. This in turn can translate into equipment up-time and longevity. Up-time can contribute to hospital cash-flow and patient satisfaction. Of course any of these can also have a quality-of-care implication, and thus also at least a theoretical safety by-product. For example, AAN notes that improved workflow can increase staff availability for actual patient care. On the other hand, if significantly more efficient processes resulted in reduced staffing, the safety effect could be neutral if not negative.

The TD2 Facilitators Guide and associated DVD provide the method in extensive detail, down to the layout of the room. The key steps are:

1. Identify a medical/surgical unit that could benefit from the analysis
2. Identify (and train or have them self-train) a facilitator
3. Select participants across a broad range of professional disciplines, including (we should note) Clinical Engineering

4. Conduct the one and ½ day structured activity.

The latter could be the most challenging part with respect to freeing up that much staff time across so many disciplines.

The group activity is defining the current processes in terms of primary tasks, and then analyzing how these tasks are accomplished. This process identification may seem self-evident yet it is an essential yet often overlooked part of system improvement. It is also expressly found in such methods as Healthcare Failure Modes and Effects and Analysis (HFMEA) (2) and Hazard Analysis and Critical Control Points (HACCP) (3). If you don't really know the process it is difficult to find and fix the weak points.

Given the current system, the TD2 participants are asked to imagine an ideal system, or perhaps more realistically, a significantly improved system. Comparison between current and ideal, with the facilitator's assistance, leads to specific improvement recommendations including technological solutions. Of course, it takes implementation to actually bring about improvement, although to a degree understanding the system and its issues can itself lead to some

positive change. Existing technical solutions would clearly be more easily implemented than imagined technical solutions.

A press release from AAN about the availability of TD2, and the supporting research and demonstration project, includes what might be a classic medical technology observation; "often, medical technologies do not assist in this <workflow> process, but make it more complex or force nurses into time-consuming 'work-arounds' that take them away from the patient's bedside." Once again then, the challenge is to design, select and implement products that actually-really-are user friendly and helpful.

For more information see the references below or contact William Hyman at the e-mail address below.

- (1) American Academy of Nursing, overview, downloads and HIMSS presentation, <http://www.aannet.org/i4a/pages/index.cfm?pageid=3318>
- (2) HFMEA, Department of Veterans Affairs, National Center for Patient Safety, [http://www.va.gov/NCPS/SafetyTopics/HFMEA/HFMEA\\_QJI.html](http://www.va.gov/NCPS/SafetyTopics/HFMEA/HFMEA_QJI.html)
- (3) HAACP, The Medical HACCP Alliance, <http://medicalhaccp.ag.vt.edu/>

William Hyman

[w-hyman@tamu.edu](mailto:w-hyman@tamu.edu)

## Charitable Group Seeks Director of Clinical Engineering

**Have you dreamed of managing a team of biomed providing volunteer medical charitable support overseas? Your opportunity awaits you!**

earthMed, which provides charitable medical program support in developing countries, is seeking a Director of Clinical Engineering.

earthMed's Director of Clinical Engineering will serve on the earthMed Board of Directors and will manage earthMed's Clinical Engineering group as autonomously as possible. The Director will be expected to work closely with other international clinical engineering experts to assure earthMed's clinical engineering support provides appropriate technologies and support methodologies.

In addition to providing biomed support during surgery missions, earthMed's Clinical Engineering group provides hands-on training and consultative assistance remotely via the Internet. This includes, but is not limited to, pursuing donations or facilitating purchasing of medical equipment and accessories, operation and service manuals, and repair parts.

earthMed is an independent, non-sectarian, all-volunteer organization founded by ACCE member Lou Schonder, who was awarded the AAMI/ACCE Robert L. Morris Humanitarian Award in 2007. The organization is now attaining IRS 501(c)(3) status as a non-profit organization, has about 50 volunteers (about 12 biomed), and is planning its first medical mission to Mongolia, with potential medical trips planned for Tanzania and Argentina. A strong potential exists for missions solely providing clinical engineering support.

Qualification for this volunteer position is determined by experience and ability. Candidate should be self-motivated, value integrity, have good communication and organizational skills, and be ready and honored to be the leader of earthMed's dedicated biomed volunteers. For further information, please send your cover letter and CV to [hr@earthmed.org](mailto:hr@earthmed.org), or fax +1 (832) 213-1664.

# CCE Review Course, May 30, 2008 in San Jose CA

ACCE will be presenting a Clinical Engineering and CCE review course on May 30, 2008 in San Jose California. Deadline for registration is April 15.

The CCE Review Course will provide an overview of the new 2008 CCE examination topics. It will include a mock written and oral exam.

The course will provide an overview of the certification topics, help identify areas in which you need further review and help you prepare for the CCE examination.

This course is designed and presented by a group of experienced certified clinical engineers.

## Course Outline:

1. Introduction to the CCE Exam
2. Technology Management
3. Service Delivery Management
4. Product Development, Testing, Evaluation, and Modification
5. Information Technology (IT)/ Telecommunications
6. Education
7. Facilities Management
8. Risk Management/Safety
9. General Management
10. Miscellaneous Clinical Engineering topics
11. Mock written exam
12. Mock oral exam

## Disclaimer:

This course is prepared and offered by individuals who are not involved in the certification process or test preparation.

## Faculty:

**Arif Subhan, MS, CCE**  
Senior Clinical Engineer

Masterplan, Chatsworth, CA  
(Course Director)

**Ted Cohen, MS, CCE**

Manager, Clinical Engineering  
University of California Davis Health System  
Sacramento, CA

**Robyn Frick, CCE**

Manager, Clinical Engineering  
Eastern Maine Medical Center  
Bangor, ME

**Frank R. Painter, MS, CCE**

Director, Clinical Engineering Program  
University of Connecticut  
Storrs, CT

**Note: This course may be cancelled if the number of attendees is less than the minimum determined by ACCE.**

**Cancellation request must be received in writing at the ACCE Secretariat no later than April 15, 2008 for a refund less a cancellation fee of \$100. No refunds will be issued after April 15, 2008.**

## Clinical Engineering & CCE Review Course Registration Form

Please register me for the Course.

\$300 (ACCE Member)      \$345 (Non Members)\*

\*Special ACCE Membership Offer – Attend the course and receive a 25% discount on a new ACCE Membership. You will need to complete the application form. Membership category will be based on your qualifications. See the membership section at [www.accenet.org](http://www.accenet.org) for details.

Contact Name: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

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## Payment Information

Total Amount Enclosed: \_\_\_\_\_

\_\_\_ Check Payable to: ACCE

\_\_\_ Purchase Order PO#: \_\_\_\_\_

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Exp date: \_\_\_\_\_

Fax registration form to: (480) 247-5040  
or

Mail to: Alan Levenson  
ACCE Secretariat  
5200 Butler Pike  
Plymouth Meeting, PA 19462-1298

Questions: Alan Levenson  
Email: [Secretariat@accenet.org](mailto:Secretariat@accenet.org)  
Phone (Voicemail): (610) 825-6067

## CCE Review Course on CDs

Purchase the CCE Review Course on CDs. This review was taped live at a five-session, 8-hour CCE Review Course, presented by a faculty of clinical engineers who have broad experience working in hospitals, independent service organizations, consulting, government, and industry. Topics of the CCE examination are reviewed by a subject specialist and the 8 hour audio course includes Q&A from the audience, Power Point Presentations, reference list, and sample questions. Topics covered in the course are: Introduction to the CCE Exam, CE Program Management, Financial & Service Contract Management, Technical Supervision, CMMS, Technology Assessment, Product/Vendor Selection, Capital Planning, Clinical Trials Management, Building Plan Review, Building Design and Human Factors, Regulatory/QA Issues, Risk Management/Safety, Education, Product Development, Repair/Systems Thinking and other miscellaneous Clinical Engineering topics. The Audio Course is available for \$300 (ACCE members) and \$345\* (nonmembers). For more information or to purchase please contact Alan Levenson at [secretariat@accenet.org](mailto:secretariat@accenet.org). Additional information is also available on the ACCE website: <http://www.accenet.org>.

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## ACCE Clinical Engineering Certification Study Guide

The American College of Clinical Engineering has completed a Study Guide for the Clinical Engineering Certification examination offered by the Healthcare Technology Certification Commission established under the ACCE Healthcare Technology Foundation. The Study Guide is available through ACCE for \$30. To order a copy of the Guide, please make out a check payable to ACCE and send to:

Alan Levenson, ACCE Secretariat  
5200 Butler Pike  
Plymouth Meeting, PA 19462

Or e-mail [Secretariat@ACCENet.org](mailto:Secretariat@ACCENet.org) and include credit card information (name on card, type of card, card number, and expiration date). Applications are now being accepted for the **November 2008** exam. Applications and the applicant handbook can be found at [www.ACCEnet.org/certification](http://www.ACCEnet.org/certification).

*The ACCE Study Guide was written by an independent group of clinical engineers not associated with the exam process*

## Calendar of Events

~ May 30, 2008  
CCE Prep Cours  
San Jose CA  
e  
- May 30 - June 3, 2008  
AAMI 2008  
San Jose, CA

### Co-Editor Wanted

Volunteer position:  
ACCE News co-editor or  
assistant editor. Contact  
Jim Keller, managing edi-  
tor at [jkeller@ecri.org](mailto:jkeller@ecri.org)  
or Ted Cohen, editor at  
[editor@accenet.org](mailto:editor@accenet.org)

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AMERICAN COLLEGE OF CLINICAL ENGINEERING

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