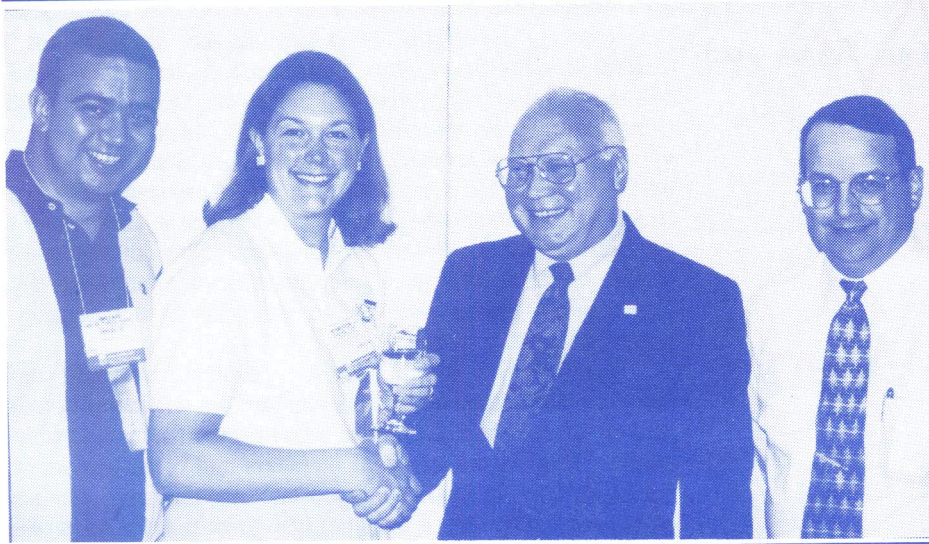


ACCE News

Vol. 9, No. 4 – July 1999



ACCE in Boston

ACCE President Bob Morris congratulates Jennifer Ott on her nomination as ACCE's next President. ACCE Board members Brian Porras (l) and Dennis Minsent (r) share the good news.

See pages 10-11

INSIDE THIS ISSUE ⇨ Workplace Profile: UC Davis p.12
⇨ Clinical Engineering & Cost Effectiveness p.4 ⇨ ACEW
Hartford p.13 ⇨ Advocacy Awards p.7 ⇨ BEACON p.14

**Second ACCE
Symposium
Clinical
Engineering
and
Information
Systems packs
the hall.**

See page 6



ACCE News

21 Bob's Lane

Setauket, NY 11733

American College of Clinical Engineering

ACCE News

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.

ACCE on the Web

[http:// accenet.org](http://accenet.org)

President's Message

Robert L. Morris, PE, CCE, morris@ohsu.edu

The past year (since the AAMI Meeting in 1998) was replete with momentous events that impacted our profession. It appears that the meetings with the FCC dealing with issues of digital television and interference with medical telemetry may result in the establishment of a dedicated frequency band for medical telemetry in the USA (Keep your fingers crossed). The accomplishment is due to dedicated, proactive participation by members of ACCE and ASHE. Other countries are working on similar issues.

In meetings with the FDA concerning proposed establishment of regulations governing non-OEM medical device refurbishers, remanufacturers and maintenance providers (including in-house operations), ACCE members were among the leaders at meetings with the FDA. The FDA has, for the moment postponed any decision and appears to be leaning toward a voluntary registration approach.

Dave Francoeur succeeded in changing the policies of the College of American Pathologists with regard to mandatory schedules for testing laboratory equipment for electrical safety. I estimate this change in the CAP requirements has saved my hospital 350 technician-hours per year. Dave actually got the CAP to change over a year ago, but the real impact of the change has been in the past year.

A formal agreement was signed with Health Tech that provides registration discounts to ACCE members and strengthens Clinical Engineering programs at Health Tech meetings.

The current year already includes significant activities and events affecting the profession of Clinical Engineering. AAMI has announced that no new applications for Clinical Engineering Certification will be accepted after July 30, 1999. The AAMI Board will meet in November to determine the final fate of the CE Certification Program. Since Certification is important to the ACCE, a committee has been formed to assess the US Clinical Engineering Certification program. All identifiable Clinical Engineers, certified or not, will be contacted and surveyed to determine attitudes and opinions about CE Certification. The American CE Certification Board of Examiners and AAMI have formed a Task Force to study the same issue. To ensure minimal duplication of effort, a member of the ACCE committee is also an official member of the AAMI Task Force. I urge everyone to voice his or her opinion on this important issue.

Some BMETs have an identity problem. It would appear that there is a percentage of BMETs who are not willing to be recognized as such or are ashamed to be so recognized. This is a terrible state of affairs. BMETs are essential members and often leaders of groups responsible for the maintenance of medical devices. Any activity or group that denigrates or does not recognize the key roles of BMETs, denigrates and fragments the professional identity of all. AAMI has also recognized the peril in denying one's working identity.

Speaking of AAMI, there is a new attitude of collaboration and cooperation between ACCE and AAMI. The Clinical Engineering Symposium, held prior to the AAMI Annual Meeting, was a great success. AAMI played a significant role in that success. Already new collaborative ventures are being discussed that will build upon recent successes. It behooves all of us to work toward improving relationships with AAMI and other related professional groups.

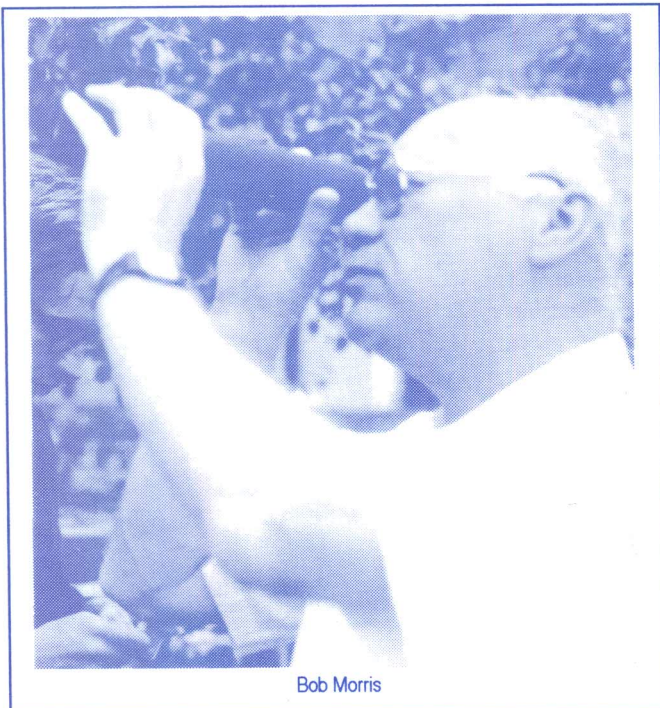
There is a new spirit of internationalism in the ACCE. The ACCE International Committee has come forth with a plan that allows ACCE members to contribute to a fund that will provide a "dues scholarship" for qualified foreign Clinical Engineers for whom the annual dues fee is beyond their means. The program has already generated funds beyond everyone's expectation.

Your ACCE is known and respected around the world. We cooperate with the World Health Organization (WHO) and the Pan American Health Organization (PAHO). The ACCE has close relations with the Clinical Engineering Association in Mexico and contact with Clinical Engineers around the world. Last year the ACCE provided faculty for an Advanced Clinical Workshop (ACEW) in Mexico City. This year the ACCE, (at the request of WHO) will provide faculty for Advanced Clinical Engineering Workshops in Moscow, Russian Federation and Cape Town, South Africa. ACEWs during the year 2000 in Chicago, the Caribbean, and Lithuania have been requested. There is always room for more qualified faculty to lecture in ACEWs held around the world. If you are interested and think you would be qualified, please send your name, *curriculum vitae* and a list of subjects you would like to teach to me.

This is my last *Message from the President*. A new slate of ACCE officers will soon be elected and you will have a new President. Thank you all for your assistance and support. Remember! Old Presidents never die. They just become Chair of the Nominating Committee and a Past President.

ACCE News

One final word. You all ARE the American College of Clinical Engineering. What the American College of Clinical Engineering accomplishes is what YOU ALL accomplish.



Bob Morris

The ACCE Board

President	Robert Morris
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Second Vice-President	Brian Porras
Secretary	Jennifer C. Ott
Treasurer	Bryanne Patail
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Education	James O. Wear
International	J. Sam Miller
AAMI Liaison	Yadin David

Letters

ACCE News, 21 Bob's Lane, Setauket, NY 11733
516-751-7802 fax; jfdyro@aol.com

The Editor encourages readers to express their views by way of letters that might be printed here for the benefit of the readership. He also likes to get mail.

WEB TRAPPINGS

Bruce Morgan, jmorgan@ibm.net

The last issue of *ACCE News* contained addresses for sending e-mail to ACCE Officers and Board Members. Unfortunately that list contained some typographical errors.

The corrected list follows:

President	→	president@accenet.org
First Vice President	→	vicepresident1@accenet.org
Second Vice President	→	vicepresident2@accenet.org
Secretary	→	secretary@accenet.org
Treasurer	→	treasurer@accenet.org
Past President	→	pastpresident@accenet.org
Advocacy Chair	→	advocacychair@accenet.org
Education Chair	→	educationchair@accenet.org
International Chair	→	internationalchair@accenet.org
Membership Chair	→	membershipchair@accenet.org
Nominations Chair	→	nominationschair@accenet.org
Public Affairs Chair	→	publicaffairschair@accenet.org
Board Member at Large	→	memberatlarge1@accenet.org
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Board Member at Large	→	memberatlarge3@accenet.org
Board Member at Large	→	memberatlarge4@accenet.org
AAMI Liaison	→	aamiliaison@accenet.org
ASHE/AIMBE Liaison	→	ashe/aimbeliaison@accenet.org
ICC Liaison	→	iccliaison@accenet.org
IFMBE Liaison	→	ifmbeliaison@accenet.org
Newsletter Editor	→	editor@accenet.org
Webmaster	→	webmaster@accenet.org

We apologize for the errors. Please notify the webmaster if there are any further problems.

ACCE News

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ACCE News is a benefit of ACCE membership; nonmembers may subscribe for \$50. To subscribe call (516) 751-7244.

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ACCE News

International Clinical Engineering Seminar in Lima, Peru

Binseng Wang, binseng@voicenet.com

On May 26-28, 1999, an international seminar entitled *Seminario Internacional Nuevas Tecnicas de Gestion del Mantenimiento Hospitalario y Desarrollo Tecnologico del Equipamiento Biomedico* was held in Lima, Peru. EsSalud, the Peruvian government social security's healthcare delivery agency, and the Pan-American Health Organization (PAHO/WHO) organized the meeting. PAHO's Antonio Hernandez, an ACCE member, was instrumental in coordinating the international participation.

The seminar was opened by the Minister of Labor and Social Promotion, Dr. Pedro Flores. Attending were approximately 150 engineers, architects, and physicians, who are currently in charge of technology management in hospitals that belong to the public sector (i.e., EsSalud, Ministry of Health, Armed Forces, and the Police), as well as interested parties from local universities, equipment distributors, and representatives of equipment manufacturers. Invited speakers from foreign countries included (in order of appearance):

- ◆ Jorge E. Villamil, Univ. de San Gil, Colombia (a participant of the first ACCE Advanced CE Workshop)
- ◆ Sergio Carmona, Social Security of Costa Rica
- ◆ Dr. Hector Brust C., Ministry of Health, Mexico
- ◆ Jonathan Gaev, ECRI, USA
- ◆ Dra. Emma Suarez, Ministry of Health, Cuba
- ◆ Dr. Binseng Wang, MEDIQ/PRN, USA (an ACCE member)
- ◆ Dr. Hugo Chacon, PAHO-Costa Rica
- ◆ Dr. Kok Swang Tan, Medical Devices Bureau, Canada

Topics discussed during the seminar included experiences of various Latin American countries in equipment management, acquisition and negotiation

of new equipment, technology transfer and obsolescence, sterilization, quality assurance, regulations and standards, maintenance management indicators, new maintenance techniques and trends, and electromagnetic interference. In addition, major manufacturers presented new products and technical support systems.

The seminar was closed by the representative of PAHO/WHO in Peru, Dr. Marie-Andree Diouf, and the General Manager of EsSalud, Silvia Armijo.

It was clear from the seminar that a resurgence in clinical engineering interest exists in Peru. After many years of economic and political instability, Peru is enjoying growth in many aspects, including healthcare delivery. Many of the participants came from private industry and have general experience in industrial maintenance, but little in medical technology management. Participants were eager to learn what has been done in other countries, especially in the US. Information about ACCE and ACCE newsletters were distributed to the participants.

15th Annual Conference on Clinical Engineering and Cost Effectiveness

Joseph F. Dyro, Ph.D., CCE, FACCE
jfdyro@aol.com

The Annual Conference returned to Boston where 15 years ago Ron Newbower, then Director of Biomedical Engineering at the Mass General, hosted the 1st Annual Conference. To emphasize the importance of productivity and cost effectiveness, or rather the antithesis of it, he and his staff designed and constructed electronic nametags that simulated an ECG waveform by way of LEDs. Imaging the time and expense when a simple paper label would do the job. But the label would have been ripped off and thrown away and with it many of the memories of that momentous event. As the 27

participants in this year's Manny's meeting looked at familiar faces seated about the circular conference table, smiles of appreciation emerged as eyes fell upon five or six name tags still blinking away. Manny's meeting was chaired by **Manny Furst*** and **Elliot Sloan** who labored long and hard to



Elliot Sloan, Mary Beth Hatem, and Manny Furst confer

arrange a stimulating and informative meeting. Some say the meeting reached new heights this year. Pleasant as it was to see the old faces, it was most refreshing to see bright, eager, inquisitive eyes of several young clinical engineers.

One such bright light was Nancy Lum, Assistant Director of Biomedical Engineering at the Mass General, who sparked lively discussion with her presentation, *Streamlining incoming inspections & applying six sigma techniques*.



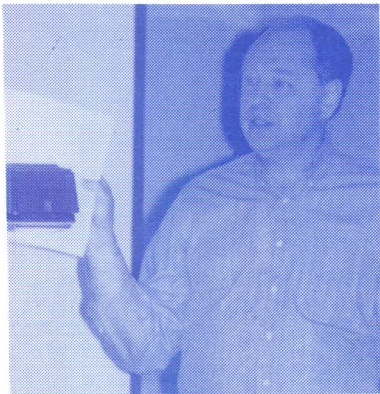
Nancy Lum

By reducing incoming inspection from 100% to statistically significant gains in productivity can be achieved. Industry does it using tried and true methods. Medical device manufacturers test 100%; so why repeat? A widely accepted Military Standard

105D was explained followed by a description of a typical sample plan a hospital might employ. Positions of regulatory and quasi-regulatory agencies do not impede the implementation of statistical sampling. Questions remain with regard to adequacy of rental company testing and of manufacturer's historical data. Extending the concept to routine inspections would increase productivity even more.

It was a hard act to follow, but Alan Barton kept the ball rolling with *Purchase and acceptance requirements for medical equipment application*. Barton, Arnot Ogden Medical Center, particularly concerned with methods and procedures for testing new technologies, proposed a methodology based upon the following considerations: technology and application; regulations, codes and standards; FDA approval; Safety vs. liability; and purchase order specifications. He presented case studies on a hemodialysis RO systems and cardiac rehab treadmills. Discussion centered on the possibility of wording a generic purchase specification to encompass critical issues related to regulations and standards. Would such a document be applicable to the broad spectrum of medical devices in existence?

And now for something completely different, psychological testing of the group. Ben Mannisto helped us probe



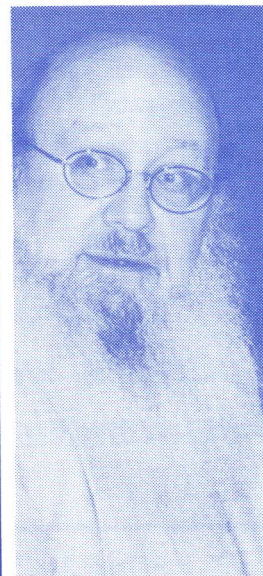
Ben Mannisto probes our minds

deeply into the recesses of our brains by administering the *DISC Personal Profile System*. Ben explained the many uses of

such testing particularly in the hiring process. The system allows a comparison of how you work everyday, how you work under pressure, and how the real self behaves. In a workbook we answered a battery of multiple choice questions. The DISC system allows the victim to analyze his own answers resulting in a personal profile. As one might expect from a room full of clinical engineering department directors, vice presidents, and supervisors, 90% were deemed to exhibit dominance, *i.e.*, emphasis on shaping the environment by overcoming opposition to accomplish results. Without going into the matter, let me say simply that this author was an outlier. We all gained a profound appreciation for the many personality traits that lurk in some fashion within our psyches.

There's a train that leaving and you better get on board! (Marv Shepherd) roused the group out of its post-prandial lethargy warning of the gathering of momentum of the *National Patient Safety Movement*. The JCAHO decision to require the analysis and reporting of sentinel events is only one of the many signals that patient safety is ascending to a new front and center priority in healthcare. Marv's presentation was based upon the article published in the last issue of ACCE News, Vol. 9(3).

Marty Freeman of AAMI gave brief remarks on the *AAMI/ANSI EQ56, Recommended Practice for a Medical Equipment Management Standard*. Mary Beth Hatem and Kathy Wayre of AAMI lead a discussion to learn how best AAMI can assist the group in its work. In answer



Arnie Mahachek wins most productive chin award

to Wayre's request for topics for training programs at next year's meeting, the group responded in a varied and spirited fashion with such suggestions as golf lessons, sailing and cigars, and backpacking. Some of the more serious members of the group responded with teamwork, diversity, self-improvement, mentoring, time management and creativity.

How could a meeting of this sort end without a Y2K presentation? **Jim Keller**, Mark Plotts and **Tom Bauld** presented the results of their extensive work on the subject, with particular focus on *Contingency Planning*. The speakers and most of those in attendance agreed that the likelihood of medical devices failing as the result of imbedded microprocessors not recognizing the date change was slim. All agreed that problems of varying intensity and duration would stem from support systems such as communications and utilities. The benefits of preparing for Y2K include creation of an accurate device inventory and refinement of existing disaster planning policies and procedures. In assigning resources to Y2K problem management, Mark Plotts plots impact vs. likelihood of failure to aid in the prioritization of needs. He noted that less than 10% of the hospital's he works with have even begun contingency planning. Most agreed that clinical engineering should work directly with the caregivers to analyze the impact of the loss of support systems on the functioning of medical devices. Training in manual techniques and identification of alternate energy sources should be part of a well-structured contingency plan. Mock disaster drills will test at least some of the best-laid plans. Participation in the Y2K process should serve to emphasize the dominant role clinical engineers have in medical device technology management.

- *Name in bold font indicates ACCE member*

Second ACCE Symposium

Brian Porras,
brian_porras@premierinc.com.

The Second ACCE Symposium was held on Saturday, June 5, in conjunction with the AAMI 1999 Annual Meeting in Boston, MA.. The topic was *The Future of Clinical Engineering – Clinical Engineering and Information Systems*. The Symposium explored the



nature and value of the relationships between clinical engineers and hospital information systems (HIS) departments. Methods used to develop partnerships between clinical engineering and HIS departments were also discussed. Panelists included Tom Bauld (Premier, Inc.), Dean Athanassiades (Hewlett-Packard Company), Richard Schrenker (Massachusetts General Hospital), and Brian Porras (Premier, Inc.).

After introductory remarks by the invited speakers, a discussion period ensued. Discussion was guided by posing the following questions to the attendees.

1. What has been the historical relationship between the clinical engineering department and

information systems departments in the hospital?

2. How has the Y2K bug changed the way clinical engineering and IS profession interact?

The Symposium was a success, with well over 70 people in attendance. This success was due in large measure to the people who organized the **First ACCE Symposium**, the work of the panelists,

“If we clinical engineers are going to be players, we have to be smarter and pushy in information technology.”

Tom Bauld

3. How have PACS, telemedicine, clinical information systems and other areas where clinical instrumentation and information technology co-exist impacted upon IS/CE interaction?
4. When does software become a medical device?
5. Is there any truth to the perception that IS departments are dominating the capital budgets of hospitals, sometimes to the detriment of other departments?

and a lively discussion, which included much audience participation. ACCE also benefited from a new, cooperative relationship with AAMI. AAMI assisted with the promotion and registration of the Symposium, and also provided for some speaker expenses.

In anticipation of the AAMI 2000 Annual Meeting in San Jose, planning is beginning now for the **Third ACCE Symposium**. ACCE members with topic suggestions should contact Brian Porras at (704) 679-5056, or email to brian_porras@premierinc.com.



Panelists Tom Bauld, Dean Athanassiades, and Rick Schrenker

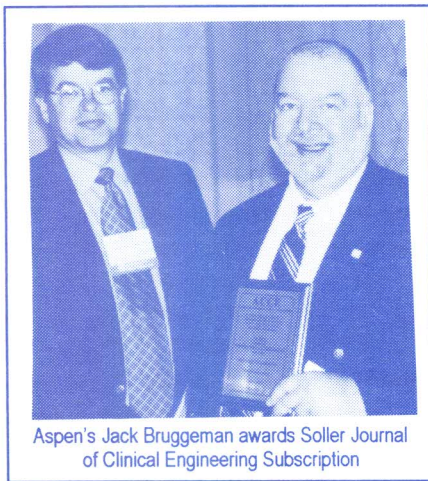
6. In the real world, how would clinical engineering and information systems interact in the future? How best to integrate?



Advocacy Awards

Tom O'Dea, odeat@email.msn.com

The ACCE advocacy awards are given to members of the ACCE who have published articles promoting clinical engineering in the fields of



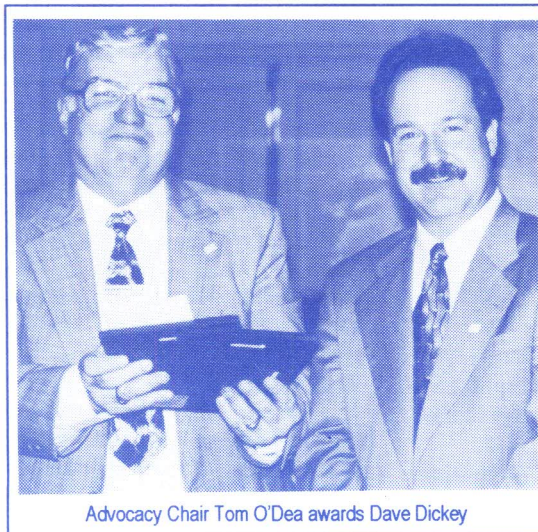
Aspen's Jack Bruggeman awards Soller Journal of Clinical Engineering Subscription

management and professional development. These two awards consist of a plaque, a monetary award, a free annual subscription to *The Journal of Clinical Engineering* donated by Aspen Publishing Co, and an ACCE sweatshirt. In addition, a new award given this year to a

clinical engineering professional contributing to the rational balance between safety and resource management was copy of the DEVTEQ safety manual, donated by Marv Shepherd.

The award for professional development was presented to **Ira Soller** of the Downstate New York Medical Center, Brooklyn, NY, for his contribution to the *Encyclopedia of Electrical and Electronics Engineering* edited by John Webster and published by Wiley.

The award for managerial excellence was shared by **Binseng Wang** for his May 1999 letter to *Consumer Reports* taking to task certain Y2K issues



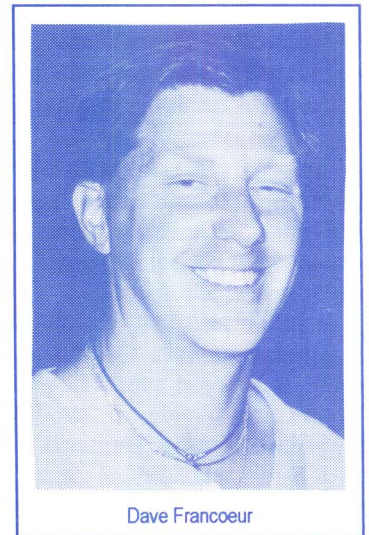
Advocacy Chair Tom O'Dea awards Dave Dickey

raised concerning the compatibility of EKG devices and **Dave Dickey** and **Larry Hertzler** for their publication "Cover Your Assets" in *Materials Management in Health Care*, January, 1999.

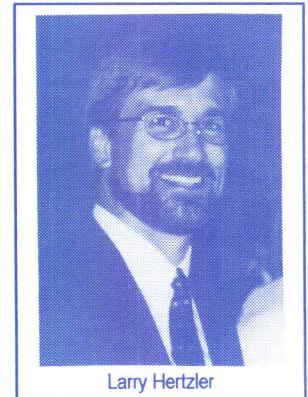
The award for contributing to the rational balance between safety and resource management was given to **Dave Francoeur** for his impact upon the College of American Pathologists (CAP) to change their lab equipment electrical safety testing requirements from arbitrary annual inspection to (1) incoming inspection, (2) after major repair and (3) at a risk-based criteria frequency consistent with the equipment management program of the institution.

Congratulations to all for these fine efforts. Members are invited to continue to publish and to nominate publications, either their own or of others, which further the field of clinical

engineering, to **Tom O'Dea**, 925 Arbogast St., Shoreview, MN 55126, for consideration for the year 2000 awards. Anyone interested in serving on the committee to evaluate submissions is also invited to contact Tom but are not eligible for the awards in year 2000.



Dave Francoeur



Larry Hertzler

ACCE News

Advocacy Award Acceptance Speech

Ira Soller

Editor's Note: Ira Soller is the 1999 recipient of the American College of Clinical Engineering (ACCE) Professional Achievement Award. The award was given in recognition of the chapter he authored on Clinical Engineering in the *Encyclopedia of Electrical and Electronics Engineering*, Volume 3, 1999, John G. Webster, Editor. Award Reads: "In honor of your efforts in advocacy of the profession of Clinical Engineering, the ACCE recognizes Ira Soller with the Professional Achievement Award for your Presentation Clinical Engineering June 8, 1999." Ira is Director of Biomedical Engineering, State University of New York, Health Science Center at Brooklyn, University Hospital of Brooklyn (Downstate Medical Center). The following is the full text of his speech given at the ACCE Annual Meeting in Boston, MA on June 8, 1999.

I would like to thank Tom O'Dea, the members of the Selection Committee, the leadership of ACCE, and you, my colleagues, for honoring me with this wonderful award and for the peer recognition that it represents, from clinical engineers whom I both admire and respect.

I would also like to thank John Webster for offering me the opportunity to write the chapter on Clinical Engineering for the Wiley Encyclopedia for which the award is being given.

In this article I strove to tell our story. Although Biomedical/Clinical Engineering policies and practices as carried out at Downstate Medical Center are used as models, and the proud tradition of SMIC, its biomedical department, are mentioned, the intent of the article from the very beginning was to provide very much more.

I attempted to capture a snapshot overview of our collective activities and varied viewpoints which, when merged together, constitute Clinical Engineering as it is presently practiced in both large and small institutions. In so doing I strove to define who we are, how we are trained, what we do, how our profession has evolved and where it, and we, may be heading.

I also tried to provide guidance to the younger members of our profession - including pitfalls to avoid, as well as in-depth information of interest to the seasoned practitioner.

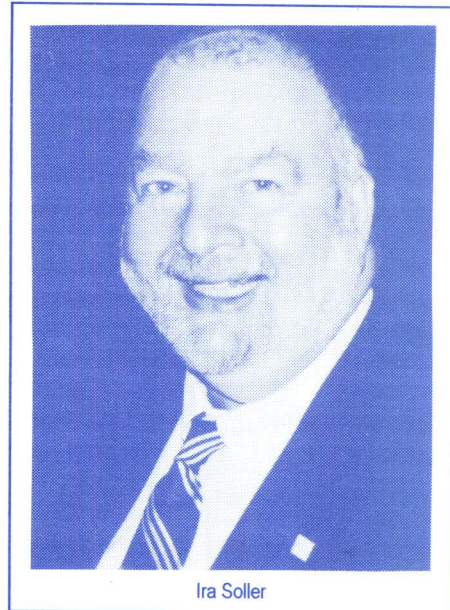
For over 20 years I have been influenced by and learned from you, my colleagues. At various meetings, conferences, and during numerous conversations, we have shared our thoughts, debated our ideas, attempted to define best practices, and endeavored to find the right path along which to move forward.

Our opinions have been diverse, our viewpoints many, yet there has always been the underlying ethical theme of attempting to do the "right thing", and to reduce risk for our institutions and the patient populations for which they provide services.

It is your daily striving, activities, initiatives, and published ideas that enlighten us all and makes Clinical Engineering the most wonderful and stimulating profession that it is. I hope that

the article captures and conveys this exciting energy and honorable tradition.

Thank you again. I will always cherish this wonderful award. I am proud to be among your ranks.



Ira Soller

NPSF News Brief

www.npsf.org June 28, 1999

NPSF News Brief is a publication of the National Patient Safety Foundation at the AMA that highlights announcements received or generated by the Foundation concerning multidisciplinary patient safety activities. News Brief is written for NPSF Board and Committee Members, sponsors, and friends of the Foundation. Items that appear in News Brief are not necessarily endorsed by the NPSF or the American Medical Association.

NPSF News & Activities

Patient Safety Policy Forum. This one-day, invitational event - "Developing a National Policy Agenda for Improving Patient Safety" - will be held at the National Press Club in Washington, DC on July 15, 1999. The program will explore the role of large purchasers in improving patient safety, proposed incident reporting mechanisms, lessons from other industries, and other current policy issues concerning patient safety. Convening organizations include the American Hospital Association, the Joint Commission on Accreditation of Healthcare Organizations, and the NPSF. CAN HealthPro is a major sponsor of the forum. Key audiences include public and private sector policy makers, business leaders, congressional staff, and health care writers. Dr. Timothy T. Flaherty, a member of the AMA, NPSF, and Joint Commission boards, will give welcoming remarks. Paul H. O'Neill, Chairman of Alcoa, will deliver the keynote address. A summary report of the day's activities and discussion will be widely distributed. For more information please contact Adam Scheffler at 312 464-5189 or adam_scheffler@ama-assn.org.

NPSF Leadership

The NPSF Board of Directors and staff are pleased to welcome two newly AMA-appointed members of the Board: Donald Nielsen, MD, Senior Vice President for Quality Leadership at the American Hospital Association and Janet Woodcock, MD, Director for the Center for Drug Evaluation and Research at the Food and Drug Administration.

THE VIEW FROM THE PENALTY BOX *David Harrington, davesbt@kersur.net*

There is something very wrong in this world. First the Stanley Cup now resides in Dallas. Then the NBA championship banner hangs in San Antonio; and most amazing of all, at the recent AAMI people were asking me for names of people to hire instead of asking for jobs. The world is changing. The two events in Texas are short lived but the increase in demand for biomedical talent has all the makings of being long term. The question is what has prompted the change in our career outlook?

There are many reasons for the upward swing in our chosen profession. One of the most maligned is the overkill on Y2K. Hospitals finally realized that even with the most modern equipment and set price contracts for their support problems could occur. As a profession we have handled the problems quickly and without all the negative publicity that other fields have had. We have also pointed out that technology management is not just keep cost down but providing good equipment, in good condition, and at reasonable prices. Another reason for the upswing is that far too many of our peers have left the profession, especially hospitals, to join manufacturers, service groups, insurance organizations, and accounting and, even, law firms. But I think the major reason for the growth surge is that each of us is better presenting the benefits that we bring to the healthcare field than ever before.

From the first open meeting of the North American College of Clinical Engineers in St. Louis in 1989, when one of the first actions was to change the name to ACCE to the present we have made steady progress as a profession. We have a code of ethics, we have continuing education programs, we have an effective newsletter and we have people working together to help promote the profession. Now we must face a new set of challenges. What will we do about certification or registration of Clinical Engineers? What will we do to bring a steady supply of qualified engineers into our profession? Can we maintain the gains that Y2K has brought us in public awareness of our profession? Can we start to impact decisions of the FDA, HCFA and other agencies by getting Clinical Engineers to sit on advisory panels? Can we get more input into the congress and state legislatures especially in the areas of technology?

Our future is as good as we can make it to be.

In closing the session of the Penalty Box I must take a little space to thank Bob Morris for all his hard work for our profession over the past 30 years. Bob brought humor and honor to us all even if he was a little slow to pick up a bar bill. So to Bob, good health a happy retirement and only enough travel to keep your wife happy.



Clinical Engineering for the Millennium

ACCE Audio-Teleconference Series

August 19, 1999

Development of a Customer-Focused Clinical Engineering Team

Tim Adams
Bloomington Hospital

September 16, 1999

Electromagnetic Interference

Joseph P. McClain, Ph.D., FASHE
Walter Reed Army Medical Center

October 21, 1999

Telemedicine

Yadin David
Texas Children's Hospital

November 18, 1999

Critical Skills for the Successful Practice of Clinical Engineering and Technology Management

John D. Hughes, MS
Washington Hospital Center

December 16, 1999

JCAHO Update

Ode R. Keil
Safety Management Services

Information: James O. Wear at 501-257-4175

ACCE News

ACCE Annual Meeting



Joe McClain, George Johnston, and Antonio Hernandez enjoy the ACCE wine & cheese reception



What do you mean, there's no more kielbasa?



Ray Zambuto and Sol Aronow toast to the health of ACCE



Mother Theresa was right Dave

ACCE News



Elliot Sloan (l) and Bob Morris (r) present the Mongolian tarbuck hat award to ACCE News Editor Dyro



Rachel Mercado and Tom Bauld do wine and cheese



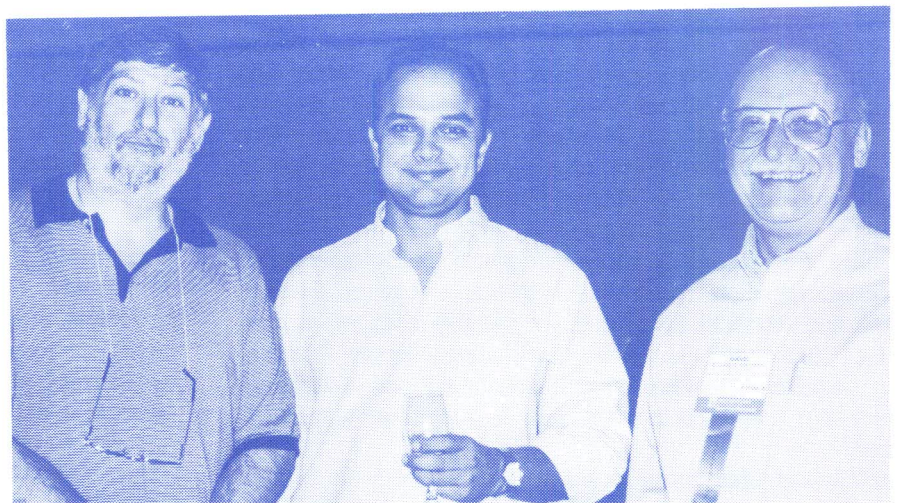
Man this is good cheese!



Brian Porras unwinds with colleagues after moderating an awesome 2nd ACCE Symposium



I only had a small shot of vodka

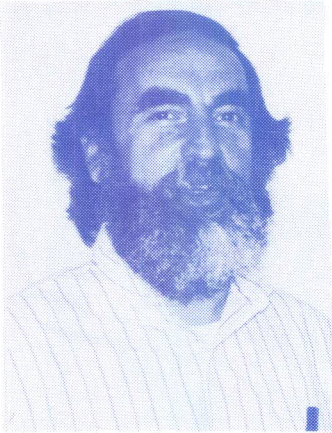


Al Levenson (l) and Dave McKinney flank a happy reveler

Workplace Profiles

Clinical Engineering at UC Davis Medical Center

Ted Cohen, ted.cohen@ucdmc.ucdavis.edu



Ted Cohen

This is the first in a series of profiles of Clinical Engineering departments and businesses. If you would like to submit a profile of your Clinical Engineering department or company, please e-mail the profile to assistant editor, at ted.cohen@ucdmc.ucdavis.edu. We look forward to your input on this new ACCE Newsletter feature.

The Clinical Engineering department at UC Davis Medical Center provides a wide range of medical technology related services to the University of California Davis Health System and the adjacent Shriners Hospital for Children, Northern California. The UC Davis Medical Center campus consists of a 455 bed hospital, a new 14 floor inpatient tower (about half of which opened in June '99 and half is 'shelled' for future use), one of the 10 busiest emergency departments in the United States and several clinic facilities and research labs. The main hospital contains over 200 monitored beds, over 30 radiology rooms and 22 operating rooms. In addition to on-campus clinics, the UCD Health System includes approximately 20 clinics throughout the Sacramento metropolitan area and neighboring communities.

Clinical Engineering provides equipment needs assessment, prepurchase evaluation, repair and maintenance services, incident follow-up and technical consulting for the full-range of medical technology including anesthesia, respiratory therapy, medical imaging, radiation oncology, clinical laboratory and mechanical equipment (e.g. hospital beds) as well as ICU monitoring and O.R. equipment.

The Clinical Engineering department is staffed with 25 FTE including the manager, (Ted Cohen), 2 half-time clinical engineers, BMET generalists, BMET specialists in x-ray, ultrasound, respiratory therapy and anesthesia equipment and a two-

person front office responsible for clerical support and technician dispatch. We use a "home-grown" Computerized Maintenance Management System designed by Ted Cohen and Tom Poage running on the UNIX Operating System using the Unify Corporation's database management system - Unify 2000. We have approximately 20,000 equipment records and 450,000 service histories on file. We perform about 29,000 work orders per year of which approximately 14,000 are repair-related, 11,000 are scheduled and the remaining work orders are incoming inspections, projects and other activities.

Clinical Engineering is very active in the capital equipment acquisition process with membership, strong involvement and influence on a variety of capital equipment committees that determine new equipment approvals and subsequently, purchase specifications and vendor selections.

Clinical Engineering periodically reports a variety of quality measures and cost indicators including ratio of service costs to acquisition costs (currently down to 4.0%), work request response times, repair turnaround times, critical systems uptimes, scheduled maintenance completion rates and customer service survey results. We were recently awarded the UCDMC Department of the Year by our Patient Care Services Departments (Nursing units *et al*) for our "staff exemplifying a service oriented team approach to all clients". Our excellent response time for repair requests (one of our own quality measures) was specifically mentioned in this award. Our front office staff screens each work order received via telephone and assigns a response time priority, e.g. <1 hour, < 4 hour, same day, and next day. We then measure how well we actually respond and compare that to the priority. On average, we meet the response time priority more than 90% of the time.

Current clinical projects include: Completion of equipment installation in the new hospital tower (primarily acute care patient monitoring equipment and radiology equipment), interfacing of additional equipment (e.g. NIBP monitors, alarms paging) to our acute care monitoring equipment and completing implementation of FUJI CR (computed radiography) throughout our Radiology department.

Current clinical engineering projects include: Adding our equipment inventory to our web-site, enhancing our web site to include additional information for the equipment operators, expanding our in-house ultrasound equipment service capabilities, and moving our department back into the main hospital building later in 1999.

We welcome visitors to beautiful Northern California (Lake Tahoe, Yosemite, San Francisco Bay Area) and if you have time, stop in and see us and we'll take you on a tour of our department and the new hospital wing.

ADVANCED CLINICAL ENGINEERING WORKSHOP – Hartford, Connecticut

Joseph F. Dyro, Ph.D., CCE, FACCE, jfdyro@aol.com

Trinity College in Hartford, Connecticut was the setting for a three-day Advanced Clinical Engineering Workshop jointly sponsored by BEACON (see following article on BEACON) and ACCE. Twenty clinical engineers from five countries enjoyed the idyllic setting of the ivy-covered halls nestled amongst the blooming mountain laurel on the lush hills overlooking downtown Hartford. The summer sun came early to warm the day and the hosts, **Frank Painter** (ACCE) and **Dr. Joe Bronzino** (BEACON) warmed the hearts of all present with their courtesy and enthusiasm. Laurie Macfarlane, Administrative Assistant to the BEACON program did all the work.

The wine and cheese welcoming reception for all participants and faculty the evening before the Workshop

“The faculty was top-notch. They taught me what I need to know now to get the job done and to grow in my profession.”

fit nicely with **Dr. Bronzino's** traditional clinical engineering graduate reunion dinner. While enjoying a scrumptious surf and turf delight, I mused, “never have I felt the presence of such a high density of clinical engineering talent.” **Bronzino**, a founder of ACCE, deserves much praise for his solid program in clinical engineering that has seen his graduates become some of the world's leading clinical engineers. Jennifer Ott recently nominated for the ACCE President, **Vinny DeFrancesco** nominated for Member-at-Large, ACCE Vice-President **Brian Porras** and ACCE News Assistant Editor, **Rachel Mercado** are but a few of a long list of stellar graduates of the program.

Day One dealt with **Management Issues**. ACCE President **Robert Morris**, Oregon Health Sciences Center, lead off with *Performance Indicators for*

Clinical Engineering. ACCE's **Greg Davis**, of General Electric, followed with *Improving Utilization of Service*

“The Workshop was the most valuable clinical engineering education I have ever had.”

Resources. **William Pollock**, President, Strategies for Growth, presented *Measuring and Improving Client Satisfaction*. Lastly, **Walt Gasparovic**, President of The Gasparovic Group addressed *Performance Improvement*.

Day Two focused on **Business Practices**. ACCE's **Dave Francouer**, Clinical Engineering Supervisor, Franklin Medical Center, worked with the attendees on *Responding to Consolidations and Mergers*. Next, ACCE Past President and ACEW Chairman, **Frank Painter**, Technology Management Solutions, gave the low down on *Taking In-house Programs on the Road: Pricing, Marketing and Support Strategies*. **Malcolm Ridgeway** (ACCE), Vice President Technology Management COHR Masterplan followed with *New Ideas in Service Provider Management*. *President of Hands-on Management Consultancy*, Leo Moerkens wound up the day with *Developing and Administering Strategic Partnerships*.

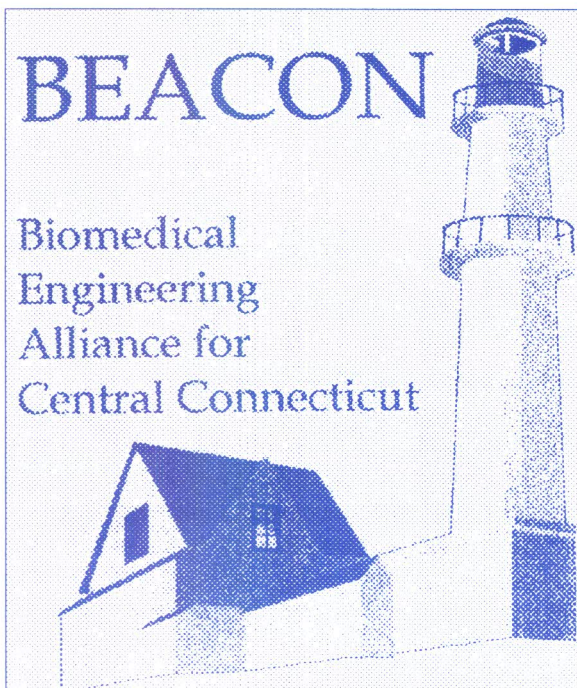
Day Three was dedicated to **Team Building**. **Rick Supples**, President, Applied Improvement Technologies, started the day with *Motivation and Morale When Dealing with Change*. **Career Development essentials** were taught by ACCE News Editor and President of Biomedical Resource Group, **Joe Dyro**. **Eric Rosow**, Hartford Hospital, explored new ground with *Leveraging Virtual Instrumentation and the Internet*.

All Workshop participants received a workbook containing the slides, overheads and outlines of all the talks. **Frank Painter** deserves a good deal of credit for ensuring that all speakers assembled their material in a timely fashion so that it could be assembled and presented at the start of the Workshop.



Bronzino congratulates alumna Jennifer Ott on ACCE President nomination

ACCE News



Another major goal of BEACON is the creation of a national center for the development of new medical instrumentation.

BEACON Educational Opportunities

As part of BEACON's academic focus, four educational institutions University of Connecticut at Storrs, the University of Connecticut Health Center, Trinity College and the University of Hartford--will jointly offer courses in biomedical engineering. These courses include lectures by biomedical engineers working in medical centers, private industries and academia, and offer unique opportunities to

examine both the theoretical and practical aspects of this rapidly developing field.

Through the University of Connecticut at Storrs, MS and Ph.D. degrees in biomedical engineering are offered. In addition, a Clinical Engineering Internship Master's Degree Graduate Program is offered which is supported by both the hospital and industrial community with internships available at the Hartford Hospital, John Dempsey Hospital, Yale/New Haven Hospital, Bridgeport Hospital and Bay State Medical Center.

BEACON significantly enhances the educational opportunities for undergraduate and graduate biomedical engineering students in the region by permitting them to more easily cross institutional boundaries (on a tuition transparent basis) to take courses offered by other institutions in BEACON. To

enable biomedical professionals and engineers in the region to take advantage of this educational opportunity, many of the University of Connecticut graduate BME courses are offered in Hartford. As a result, biomedical engineering students have the opportunity to interact with all BME faculty and students at area academic institutions.

"We have had a clinical engineering program for about 25 years now, and it's been very successful," says Bronzino. "In this program, students work 25 to 30 hours a week at the hospital for two years and take classes in the evening. It is a small, high-quality program from which four or five students graduate every year."

Two seminars, sponsored by BEACON, will be presented each academic semester by nationally recognized biomedical engineers. Annual conferences each summer highlight biomedical engineering research activities of the region. During the summer of 1998, a conference on Biosensors was jointly hosted by BEACON and the IEEE---EMBS (Institute of Electrical and Electronics Engineers Engineering in Medicine and Biology Society). BEACON

"We have had a clinical engineering program for about 25 years now, and it's been very successful," says Bronzino.

provides special customized courses, workshops and conferences for biomedical professionals and industry. Most recently, June 1999, BEACON and ACCE joined forces to present an Advanced Clinical Engineering Workshop.

BEACON Research Opportunities

By focusing on the fields of biomechanics, biosensors and bioinstrumentation, BEACON will promote a "Center of Excellence" in each of these areas.

In the area of biosensors and

BEACON, the Biomedical Engineering Alliance for Central Connecticut, is a unique collaborative arrangement among both private and public institutions including Trinity College, The University of Connecticut at Storrs, The University of Connecticut Health Center, The University of Hartford, and such medical institutions as Hartford Hospital, The Connecticut Children's Medical Center, John Dempsey Hospital, The Yale/New Haven Hospital, Bridgeport Hospital and The Baystate Medical Center.

Initially funded by a one million-dollar grant from the Whitaker Foundation, the primary goals of BEACON are to enhance:

* Educational opportunities in the fields of biomedical engineering

*Collaborative biomedical engineering research efforts, especially in the fields of Biomechanics, Biosensors and Bioinstrumentation, between institutions of higher learning, the health care community and industry

* Medical technology transfer within Connecticut

bioinstrumentation, BEACON will foster the development of new and novel ultra-miniature biosensors, and noninvasive instrumentation for use in biomedical engineering and biotechnology. The expansion of medicine to the cellular and molecular level has demonstrated the need for transducers that are scaled to detect cellular and molecular processes and dimensions. The development of ultra-miniaturized sensors will be essential in the automation and effective utilization of such emergent technologies as transgenics, gene therapy and microsurgery. Much of the work in biosensors and bioinstrumentation is carried out collaboratively with the UCONN Biomaterials Imaging and Biotechnology Centers.

BEACON and ACCE joined forces to present an Advanced Clinical Engineering Workshop at Trinity College this June.

The biomechanics effort has two foci: cardiovascular system dynamics and rehabilitation biomechanics. The cardiovascular system dynamics effort, which is concerned with describing the heart as a pump, explores heart-vessel interaction, cardiac contractility at the cellular level and noninvasive instrumentation. By adopting a systems approach, molecular and cellular biological information can be related to organ-level function. The rehabilitation effort focuses on improving patient function by altering the mechanics of the musculoskeletal system via nonbiological materials and/or surgery. The increasing age of the general population and the need for more efficient and lower cost medical techniques make rehabilitation engineering increasingly important. The use of finite-element modeling, linked to better understanding of orthopaedic materials, both native and

constructed, is critical to improving current techniques and equipment, as well as developing new innovative methods and devices. Other biomedical engineering research areas are also supported including biomaterials, image processing, biosignal processing, physiological modeling, clinical engineering, expert systems, physiological control, tissue engineering, biotechnology, and gait analysis.

BEACON Technology Transfer

BEACON will create an environment to nurture and facilitate the transfer of biomedical technology between the academic, clinical and industrial communities within the state of Connecticut with the goal of developing new biomedical business opportunities and products. To accomplish this goal, BEACON will assume a leadership role in promoting the creation and development of the following Biomedical Technology transfer activities:

- Development of Intellectual Property policy guidelines respecting the varied strategic interests and objectives of the BEACON academic and clinical partners while providing favorable

terms and simplified procedures for the transfer of technology to industry.

- Development of a BEACON member catalogue describing current biomedical research activities and facility resources.
- Development of joint academic and industrial projects.

Although the administrative offices of BEACON are presently at Trinity College, the location of the BME course offerings and administrative offices will ultimately be in the Medical Technology building in The Learning Center being planned between Trinity College and Hartford Hospital.

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Clinical Engineering Alumni/ae dine at reunion dinner with Dr. Bronzino and ACEW faculty and participants

ACCE News

ACCE Board Highlights

Thursday, May 13, 1999

Jennifer C. Ott, Ottj@slucare1.sluh.edu

Present: J Ott, F Painter, K Taylor, B Morris, J McClain, B Patail, S Miller, B Wang, J Dyro, B Porras

Excused: D Minsent, C Campbell, J Wear, K Galanopoulos

Minutes of the Last Board Meeting (J Ott): The minutes were unanimously accepted.

Officer Reports

President (B Morris)

- Marv Shepherd of DEVTEQ Publishing Company has proposed a challenge donation/award to an ACCE member. He would provide one copy of the "Medical Device Incident Investigation and Reporting" manual (value of \$215) to an ACCE member for the 1999-2000 along with one year of updates. The challenge part for the award is that at least one year's membership will be awarded to a deserving, clinical engineer who is not presently an ACCE member but one who has the qualifications for membership. The intent is to introduce a qualified person to the benefits of ACCE membership with the hope that they will continue the membership after the one-year award ends.

ACCE Board of Directors unanimously approved the motion of two memberships and one DEVTEQ to be separate. T O'Dea will coordinate the recipient of the DEVTEQ award and the Board will award the two memberships.

- B Morris has submitted a rebuttal letter to 24X7 discussing the issue of the Broussard petition of Biomed Week. The letter originally ran in *ACCE News* Vol. 9(2). Broussard appears to blur the distinction between the BMET and engineer field while advocating for a Biomed Week that would exclude BMETs.
- Planning for the World Congress in Chicago 2000 is going forth. (See Brochure in this issue)

Second Vice President (B Porras)

- The Second ACCE Symposium is on track.

Secretary (J Ott)

- Plaques have been ordered for outgoing officers and Fellow members.

ACCE Board of Directors unanimously approved the fellow application process to consist of one \$50 application fee, \$25 will be returned if the application is not accepted, otherwise the new Fellow member will receive a plaque.

Treasurer (B Patail)

- A substantial cash reserve exists, part invested in CD.
- Increase in revenues attributed to timely dues payments.
- Non-renewals will not receive *ACCE News*.

Committee Reports

Membership (J Ott for K Galanopoulos)

- New members proposed are Olawale Akinwale, Salil D. Balar, Barbara Donohue, Shehzad Nazir Leghari, Ben Lars Loewenbach, Malcolm Ridgway, Jack Spears, and Bob Larkin.

ACCE Board of Directors unanimously approved the new members.

Education (J Ott for J Wear)

- All speakers are confirmed for the 1999 teleconference season.

International Committee (S Miller)

- Brochure has been completed and will be distributed in *ACCE News*, Vol. 9(3).
- **A plan to offer financial assistance for membership dues to international members from countries with severe monetary difference conditions was devised and approved for presentation to the ACCE Board at the last meeting. Applicants will be matched to the available funds on an annual basis.**
- The ACCE Library will be a main project for the International Committee over the next year. See *ACCE News*, Vol. 9(3) for details.

Nominations (F Painter)

- Committee consists of Nick Noyes, S Trojanowski and F Painter.

Other Activities

ICC issues (F Painter)

- AAMI has sent a letter to the ICC, USCC and Board of Examiners stating that they propose to end their relationship with ICC which could result in no further CCE applications, exams, or approvals. Mike Miller stated that the Board of Examiners has caused some of the problems. A revival could help and ACCE would like to provide the assistance. Something needs to be sent in writing to Mike Miller outlining a proposal on behalf of ACCE. If accepted ACCE could potentially take over this action. The committee consists of B Wang, F Painter, T Cohen, G Johnston, B Morris, and T Judd.

HealthTech 1999 Synopsis (B Wang)

- B Wang is to be commended on the fantastic job he did in organizing the sessions. It was well received and we look forward to next 10 years!

Newsletter (J Dyro)

- Newsletter is alive and well, maintaining its publication schedule over the last three years.
- Advertisement revenues equal cost of production.

Website (B Morris and J Dyro for B Morgan)

- The Board needs to consider a more formal approval process in order to assure that the links are proper and information is kept current. The Board will need to coordinate with our fantastic, hardworking webmaster and provide him the feedback he requires.

ACEW (F Painter)

- The 3-day Hartford ACEW is on track.
- The Moscow ACEW will held in September and is being financed by WHO and chaired by Y David.
- The Capetown ACEW, T Judd, Chair, will held in November and is also being financed by WHO.

AAMI Midyear 2000 (B Patail)

- T Bauld is logical ACCE coordinator for AAMI Midyear 2000 in Michigan.

Implementation Guidance (J McClain)

The military utilizes implementation guidance to change the direction of how the military goes in the future. Guidance eventually becomes regulation. This year, an implementation guidance was released titled *The Regional Tri-Service Medical Logistics*, one chapter of which covers the transition from medical maintenance to clinical engineering and will be distributed to the military organizations.

ACCE Board Highlights

Monday, June 7, 1999

Jennifer C. Ott, Ottj@slucare1.sluh.edu

Present: B Morris, F Painter, B Porras, J Ott, D Minsent, J McClain, B Patail, C Campbell, K Galanopoulos, T O'Dea, S Miller, J Dyro

Guests: A Velázquez, A Hernandez

Minutes of the Last Board Meeting (J Ott): *The minutes were unanimously approved.*

Officer Reports

President (B Morris)

- ACCE is a co-sponsor of the World Congress to be held in Chicago next June. The International Committee will review papers and develop CE track. F Painter, B Morris, and S Miller are working with Dr. Bronzino.
- Painter will develop a proposal for secretariat assistance.

Second Vice President (B Porras)

- The Second ACCE Symposium, Clinical Engineering and Information Systems, was well received by over 70 participants.
- Planning for the Third ACCE Symposium is underway with the proposed topic of Medical Telemetry – Planning for the Frequency Allocation. B Porras will run this symposium.

Secretary (J Ott)

- The 1999-2000 Directory will be available after elections.
- All former Board-approved items will be formatted for easy Board Member reference.

Treasurer (B Patail)

- Income is right on line with budget
- We currently have 152 paid members. Members can pay via credit card through Morse Medical.

The Board gave a rousing applause to Patail for his wonderful work bringing the Treasurer position into the computer age.

Committee Reports

Membership (K Galanopoulos)

- We have had 27 new members since last year.

Education Committee (J Ott)

- Teleconference registration is low despite heavy promotion.

Advocacy (T O'Dea)

- Ira Soller, Dave Dickey, Larry Hertzler, and Binseng Wang are Award Recipients. See page – this issue for details.
- The DEVTEQ award went to Dave Francoeur.
- The one-year ACCE membership awards will go to Steve Wexler and Bob Stiefel.

ACCE Board of Directors unanimously approved the award of one-year memberships to Steve Wexler and Bob Stiefel.

International (JS Miller)

- The International Membership Project has been approved and money will be solicited at the Annual Membership Meeting.
- The Technical Library Project was also approved and is being put together. See *ACCE News* Vol. 9(3).

Nominations (F Painter)

- Nominations include: President – Jennifer Ott, First VP – Bryanne Patail, Secretary – Caroline Campbell, Treasurer –

open, Member at Large (2) – Ted Cohen, Vinnie DeFrancesco, Gary Evans. Continuing on the Board are Brian Porras – Second VP, Joe McClain – Member at Large, Bob Morris – Past President. This slate will be finalized and the ballots will be sent in July.

Other Activities

CCE Committee (F Painter)

- ACCE has formed a committee (F Painter, B Wang, T Cohen, T Judd, and G Johnston) to develop a proposal for CCE certification to AAMI. AAMI has planned to dissolve the process and is willing to accept proposals including one from ACCE to potentially take over this process.
- The timetable is (1) determine list of additional 400 CE's by June 30, 1999, (2) Questionnaire/Survey developed by June 30, (3) Mail questionnaire by July 10, (4) Receive questionnaire by August 1, (5) Compile results by August 30, and write proposal for AAMI by September 30.
- AAMI has also developed a task force with F Painter as ACCE representative.

Newsletter (J Dyro)

- In 3 years there have been 6 newsletters per year ranging from 16-20 pages

Website (F Painter)

- Website is looking great. New address is working well. On-line directory in progress.

ACEW Review (F Painter)

- Hartford (June), Moscow (Sept.) and Capetown (Nov.) are on track.
- Preliminary workshops for 2000 include Lithuania and Dominican Republic.
- A Velázquez stated that the Mexico workshop was wonderful and everyone learned a lot. They are still talking about the fantastic job the faculty did.



Andriana Velázquez

“The Mexico workshop was wonderful and everyone learned a lot. They are still talking about the fantastic job the faculty did.”

Other Society Relations (B Morris)

- ACCE will co-sponsor with MSCE the AAMI Midyear with T Bauld as representative.
- The WHO listserve has been developed and Al Jakniunas will oversee on behalf of ACCE.

PAHO (A Hernandez)

- Many thanks for the hard work ACCE does in the alliance with PAHO. We look forward to many more projects.

ACCE News

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A-141



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A-142



ACCE News Editor takes time to smell the roses



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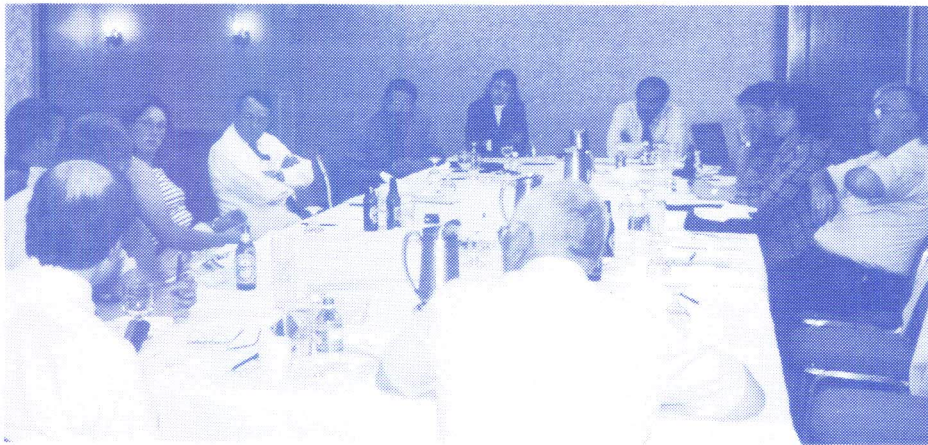
State of Ohio Board of Proprietary Schools Registration 94-05-1398T

A-126

Calendar of Events

- ACCE Teleconference, An Integrated Approach to Managing Technology, Mike B. Stevens, July 15, 1999.
- ACCE Teleconference, Development of a Customer-Focused Clinical Engineering Team, Tim Adams, August 19, 1999.
- 4th Asia-Pacific Conference on Medical and Biological Engineering, Sept. 12-15, 1999, Seoul, Korea, <http://bme.hanyang.ac.kr/APCMBE99>
- ACCE Teleconference, Electromagnetic Interference, Joseph P. McClain, September 16, 1999.
- BUDAMED '99, Sept. 13-15, 1999, Budapest, Hungary. <http://www.fsz.bme.hu>; arato@fsz.bme.hu; (+361) 463 2699; 2204 fax.
- Joint Meeting, Biomedical Society and IEEE/Engineering in Medicine and Biology Society. Atlanta, GA. <http://bmes-embs99.gatech.edu/>
- 5th International Conference on Biomedical Engineering, October 17-20, Tianjing, China, yxgch@homeway.com.cn
- ACCE Teleconference, Telemedicine, Yadin David, October 21, 1999.
- EMBEC '99, Nov. 4-7, 1999, Vienna. +43 1 588 04-0, +43 1 586 91 85 fax.
- 19th Annual Northeastern Biomedical Symposium, Nov. 8-10, 1999 Manchester, NH. Info: www.nnesbt.org.
- ACCE Teleconference, Critical Skills for the Successful Practice of Clinical Engineering and Technology Management, John D. Hughes, November 18, 1999.
- ACCE Teleconference, JCAHO Update, Ode R. Keil, December 16, 1999.
- AIMBE 9th Annual Event, March 3-4, 2000, Washington, DC.
- Health and Design, June 2000 in Stockholm. www.ki.se/ipm/dchp2000
- World Congress on Medical Physics and Biomedical Engineering, July 23-28, 2000, Chicago, IL. <http://www.wc2000.org>.

ACCE News



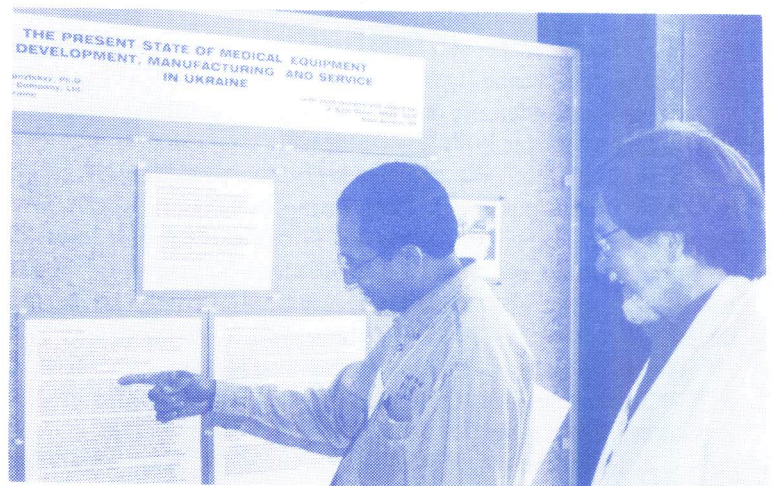
ACCE Board deliberates in Boston



All speakers in the AAMI Session on Accident and Incident Investigation are ACCE members (l to r) Jerry Anderson, Sol Aronow, Joe Dyro, Marv Shepherd, Sam Miller, and George Johnston



ACCE members huddle
On the convention floor



Bryanne Patail examines the work of Igor Stupnytskyy at AAMI Poster Session as Igor's sponsor Sam Miller look on