# ACCE News

*April 1995*

*American College of Clinical Engineering*

## *ACCE President's Message*

ACCE continues to make substantial progress. Many planned activities and objectives are being accomplished and we are achieving greater recognition as a credible resource and partner. We have a new Secretariat. ECRI will serve in that capacity, relieving the burden from Yadin David and his staff. We owe a great deal to Yadin, our first President, for his unflinching support and continued commitment to the organization. The new address is 5200 Butler Pike, Plymouth Meeting, PA 19462-1298. The phone number is (610) 825-6067 and the bulletin board number is (610) 825-9284. Please use that address for all future correspondence.

By now, many of you will have had the opportunity to be part of the innovative and cost effective new educational program where the faculty comes to you by way of telephone conference call. The course, *Understanding the Healthcare Marketplace*, was the first in a series of six scheduled for the first half of 1995. ACCE is the first professional organization in the United States to educate by telephone conferencing. I hope you were able to host a small group as I did. In addition to the discussion that preceded and followed the actual course, we shared thoughts and concerns on other issues. We had many of the local ACCE Member Group's together for this course and plan to continue this for the rest of the courses, possibly rotating the host site. Serendipitously, Local Member Groups were conceived by Fred Wainwright of Florida and then developed and implemented by Tom Judd. Be sure to sign up for the next course on April 20, *Tools for Technology Managers: Strategic Technology Planning* presented by Yadin David, Phd. of Texas Childrens Hospital. Remember, ACCE members get a 20% discount, so each of the remaining courses is only $96. If you have two others at your site, each of you would pay only $32. We are indebted to Wayne Morse who conceived of the audio conference course format at an ACCE Education Committee meeting last fall. Great idea and beautiful brochure, Wayne! I also want to express great appreciation to Jim Wear, the ACCE Education Committee Chairman, who has worked so hard to organize the logistics, including the phone links, handout distribution, course registration, evaluation, and CEU certificates. In the long term, it should be possible to go to even higher levels of technology by employing desktop video with real time interaction.

In another innovative move, the ACCE Board has approved a collaborative venture with the American Society of Hospital Engineering. We are co-sponsoring the 11th Annual Technology Management Conference, Nov. 24-26, 1995 in Chicago. The meeting will be held in conjunction with the Radiological Society of North America (RSNA) Meeting which occupies the enormous McCormick Place Convention Center from November 26th through December 1, 1995. At the 10th Annual Technology Conference in Atlanta last year, 11 of the 38 faculty members were ACCE members. Next year, we hope to attract a large number of ACCE members as conference registrants as well as faculty members. As part of our agreement, ACCE members will receive the ASHE member registration rates for the conference. Be

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sure to plan ahead early, since hotel space is at a premium during the RSNA and this should prove to be a valuable meeting. We are excited about working together with the ASHE Clinical Engineering Section leadership in this project.

As part of our advocacy effort, the ACCE will proclaim June 11-17, 1996 as the first National Clinical Engineering Week. This allows us to return from the Annual Meeting and be involved in demonstrations, open houses and special conferences at our institutions. While we may not yet be able to obtain a Federal Proclamation, each of us in our own state can request and obtain a Gubernatorial proclamation. We will issue press releases and inform the other interested clinical engineering organizations so that they may join us in this effort. Please begin planning now and communicate through the newsletter celebrations that you have at your institution. In another collaborative effort, the ACCE has joined with the FDA and AAMI to co-sponsor a two-day technical workshop on Electromagnetic Compatibility for Medical Devices: Issues and Solutions, May 24-25, 1995, Anaheim, CA. Contact Kathy Weyre at AAMI (800) 332-2264 x 241, for additional details. Our co-sponsorship enables ACCE members to register at a reduced rate.

We welcome Mark Brody as the new Editor of *ACCE news*. He begins on the next issue and will take over from Joe Dyro who volunteered for this issue as guest editor. Be sure to mark your calendars for our Fifth Anniversary Annual Meeting to be held at 7:00 PM on Tuesday, May 23, 1995 at the Disney Hotel in Anaheim, CA.

*Thomas J. Bauld, President*

## The Board

| | |
|---|---|
| President | Thomas J. Bauld |
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| Nominations | Joseph F. Dyro |
| Education | James O. Wear |
| International | Henry Montenegro |
| Planning | Joseph F. Dyro |
| Inter-Society | Yadin David |

## Letters to the Editor

George Johnston writes with advice for the clinical engineer traveling to distant lands. On his way to Hangzhou, China to establish clinical engineering programs, George honed his negotiating skills in Hong Kong with the rickshaw operators.

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**ACCE News**

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Walnut Creek, CA 94598

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Dear Joe:

Back to Hong Kong to pick up two Hong Kong tailored suits, VCR and FAX machine and up to Hangzho. While in Hong Kong, Arlene managed to get Shanghaied by a Hong Kong rickshaw driver. Most outrageous experience ever. Scam works like this. We are heading for the Starr Ferry on Hong Kong island to go back to mainland Kowloon. As you approach the ferry there are a bunch of colorful rickshaws with drivers waiting to pounce on tourists. Step 1: rickshaw driver pantomimes to you "Take my picture." You do. Step 2: "Your wife must be in picture." Wife stands beside rickshaw - you take picture - rickshaw driver says, "She should be in rickshaw." She gets in. You take picture. He takes off! You are standing there wondering what the heck is going on. Up comes rickshaw driver number two. "You must get in. Follow wife." This is where you separate the tourist from the traveler. I waved off driver number two, but was very curious as to where driver number one was going with Arlene, especially since she had no money. I watched him turn the corner and head off around the block on the other side of the parking garage. Sure enough he continued around the block, but tried to let Arlene off still a half block from where they started. And sure enough when she told him she had no money, on he came back to me. She got out and said "You need to pay him." Now Hong Kong dollars go 7.5 for 1.0 U.S. I figures that little ride around the block was worth 10 maybe 20 HK. He turned to me and asked for 200 HK, $25 U.S. I told him he was outrageous and offered 10 HK. And the fight was on. I said I wouldn't pay it and turned to leave. He grabbed Arlene by the arms to hold her. She was almost laughing. I continued to walk away amidst a torrent of Chinese from him. When he saw I was serious, he released Arlene and started to chase me. I told him again all I would pay was 10 HK and tried to stuff the bill inside his shirt. He struck away my arm and started in again. And again I said it was 10 or nothing and proceeded to walk away. Then he really started shouting and we stared at each other - eyeball to eyeball. Finally he said "20." I gave him 20 HK and we headed for the ferry. And that probably was the highlight of our experience in Hong Kong.

In a more serious vein the following insightful letter was drafted by Fran Riebman.

Dear Colleague:

For years Clinical Engineers have been pushed aside and treated like second rate citizens in the medical facilities in this state [New Jersey]. We are underpaid and overworked and not considered a part of the patient management team. Yet our expertise ensures not only patient safety and state of the art diagnostic and patient management technology but, quality patient care. Although we do not directly generate revenue, we are often responsible for effectuating large economies in medical facilities. Most of us have strong backgrounds in both engineering, anatomy and physiology. As biomedical engineers we have participated in research and development of medical technology, modifications of existing technology and the education of personnel who use this technology. As Clinical Engineers we have moved to the forefront as managers with knowledge in departmental administration, accounting, contract negotiation, purchasing, and quality assurance. Among our numbers are those who hold patents and have been responsible for the advent of life saving technology. By the same token, we who are most knowledgeable about these technologies are often silenced when we speak out to physicians, nurses and other allied personnel concerning improper application of a technology or poor decision making in purchasing.

The fact is that this is our own fault. We have chosen to be invisible. We fear for our jobs; we protect our positions regardless of how demeaning they might be. We silently sit back and watch poor decision making with regard to technology. MEDICINE IS TECHNOLOGY; that is a fact. Physicians and nurses could not perform life saving procedures without the technology that we as a profession have made possible.

Many hospitals in the State of New Jersey do not even have Clinical/Biomedical Engineering Departments. Millions of dollars are wasted each year due to the improper application of technology, poor technology planning, indiscretion in purchasing, ineffective maintenance and safety management, and poor quality control systems. Many patients are

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injured due to faulty equipment or improper application of technology.

We can and should become a major force in health care reform. In order to do that we must first become visible. We as a group must present our case before the state legislature, meet with the Governor, meet with the Commissioner of Health, and meet with the Healthcare Commission. We must move those in power to mandate that each and every medical facility in the State of New Jersey be required to employ a Chief Technology Officer and the person must be a CLINICAL ENGINEER.

Please join us in our endeavor to educate the political and medical superstructure.....

Fran Reibman
(201) 763-6525; (201) 761-0137 fax

Encouraging news continues to pour out of my fax machine from members in Albania, the Slovak Republic, the Ukraine, Brazil and Italy about the growth of clinical engineering organizations. Heartfelt thanks and appreciation are universally expressed by those who have had the privilege of attending ACCE Advanced Clinical Engineering Workshops. The following letter comes from a man who has applied every ounce of information gleaned from his workshop experience to almost single-handedly achieve recognition for clinical engineers in his country, Brazil. Lucio Flãvio de Magalhães Brito sent me recently the Hospital Safety Manual he authored for the Health Ministry of Brazil. He acknowledges that this comprehensive document owes its conception, quality and depth to the information imparted to him in his association with ACCE members. I include his latest letter below:

Dear Dyro,

I would like to start by saying again that Clinical Engineering in Brazil is growing more and more. In 1989, at Campinas city, Brazilian engineers heard for the first time the term "Clinical Engineer." In 1991, six engineers from Brazil were trained in Washington by the ACCE along with IFMBE, WHO, and PAHO. In 1993, the Brazilian Ministry of Health gave financial support to four universities to implement a clinical engineering program. In two years, 100 clinical engineers have graduated. In 1995, 3 of the 4 universities will continue to graduate clinical engineers without financial support of the Ministry of Health. This year, the Clinical Engineering Department of the Brazilian Society of Biomedical Engineering will be consolidated. ICC recognition of an examining board in Brazil is in the works. Finally, I am making arrangements with SENAC to host a second symposium in clinical engineering this August in Brazil.

Sincerely, Lucio Brito

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To further advance the profession, ACCE has recently launched several initiatives: the Productivity Improvement Project, Grass Roots Teams, and Educational Teleconferencing.

# Productivity Improvement

In the May, 1994 issue of *ACCE news*, Tom Bauld launched a project to obtain reports of productivity improvements. He asked clinical engineers to send their reports to him so that they could be printed in the newsletter and eventually collated into a handbook. Tom provided a format for reporting. Two reports follow, both submitted by Tom. Read the reports and take the time to write down your own positive experiences. It will help all of us to demonstrate the value of the clinical engineer.

### *Case Study One:*

The Biomedical Department at the University of Michigan has had a significant impact on the operating expenses of our Patient Equipment Department. We have a huge inventory of IVAC Model 560 large volume infusion pumps, 720 of them to be exact; but that hasn't been enough to meet peak demand needs. Routinely, the Patient Equipment Department had rented 50 pumps a month from a local medical equipment rental company. The monthly rental cost was $90.00 per pump, or $1,080 annually. When we became aware of their need, we inquired about used equipment using the ECRINet Bulletin Board. From

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hospitals in Vancouver and Montana, we purchased a total of 124 pumps at an average cost of $200. We used capital funds rather than operating expense funds and upgraded pumps without "All Rate" capability to match our standard configuration. One hundred and fourteen of the used pumps were purchased as replacements for the rentals, and our Biomedical Engineering Department purchased 10 of them for spare parts. We apportioned the cost of the major parts as a percentage basis and added them to our parts inventory system. Our parts inventory software averages the price we charge customers based on the parts acquisition cost as well as the parts inventory value. As an example, instead of spending $600 to send a pump out to the manufacturer to replace a chassis, we spent $50 for parts and $33 for labor, a net savings of $517 for the repair. We estimate that we acquired parts valued at $15,000 while we paid only $2,000. Overall, the annual operating savings for the Patient Equipment Department including rentals and repairs is at least $50,000.

### *Case Study Two:*

A BME Department member became aware of the excessive time wasted as callers were provided voice prompts as they initiated pages. Complaints had been received by our Communications Department staff. The voice prompt asks for the caller to enter the pager ID number. Then the caller is provided the STATUS of the person being paged. Many possible status's are available, including "In Hospital on Page", "In hospital, page only in Emergencies", "Out of hospital, pager # nmnm covering", and "Unavailable." As might be expected, about 90% of the staff are "In Hospital, On Page." The paging system provides the ability for those with pagers to change their paging status using the numerical keypad of the phone or by calling the paging operator. As part of the status message, the caller is told, "Dial your call back extension and then hang up." The change involved a revision of the AIS Paging System software which eliminates the voice prompt when the person being paged is "In Hospital, On Page", and simply informs them to enter their call back number.

Annual Cost Savings: The cost for the software modification was $ 1,200.00. The time savings was not translatable into FTEs reduced; however, measurable time savings for our staff and improved efficiency resulted. We process 15,000 direct dial pages per day. Before the change, voice prompting took 11 seconds and now it takes 6 seconds. We save 5 seconds per page or 1,250 minutes per day. Annually that amounts to 7,604 hours or about 4.2 FTEs. Assuming an average salary of $40,000 per FTE, the equivalent savings is $170,000.00 each year.

What was contributed by a clinical engineer? The idea was that of an Assistant Manager in the Biomedical Engineering Department, a former BMET prior to being promoted to Assistant Manager. This example represents the correction of an obvious problem that thousands of people have experienced. Because the Biomedical Engineering Department has responsibility for the support of the AIS paging system, as well as its interface to our Dukane Nurse Call System, we knew what could be changed in the system software to improve the operation. We worked with the vendor to specify and then install the software. Any institution with voice prompts provided to callers by its paging system may be able to implement an improvement such as this.

## Grass Roots Teams

A call went out to all ACCE Grass Roots Team Leaders at the end of last year to convene their teams to ask the following questions:

1. How is health care reform affecting your area and your career?
2. How can you realize your team's range of talents to help one another?
3. What key professional issues are you facing at this time?

Grass Roots Team answers are to be put on ECRINet BBS (ACCE Sub-section). Check out the BBS for this and other ACCE information.

## Education

### *Teleconference 1995*

The Teleconference 1995 Program is off to a strong start. As a reminder to those who would like to participate, you can get information on the program

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by calling Jim Wear, ACCE Course Registration, at 501-370-6618.

***Advanced Clinical Engineering Workshop***

The Mombasa Organizational Committee has met several times over the past few months to plan the Advanced Clinical Engineering Workshop for the Sub-Saharan African Region in Mombasa, Kenya, August 14-27, 1995. The international faculty has been selected, the curriculum has been established, students are being selected, and funding proposals have been submitted.

## Member Profile

As a way of getting to know more about who makes up the ACCE, we will be profiling members each issue. This issue starts off the series with a profile of a friend and colleague of the editor:

***Professor Bruce Morgan***

- Associate Professor of Biomedical Engineering Technology, State University of New York at Farmingdale, Long Island, New York. His program is one of only six such accredited programs in the country. He has 35 students currently enrolled.
- Set up the regional clinical engineering service in Saint John, New Brunswick. He served as Associate Director Of Research and Development, City of Hope Medical Center & Director of Biomedical Engineering, Misericordia Hospital Edmonton.
- B.S. Engineering California State University and MS BME University of Southern California, Marine Corps, Viet Nam Veteran, Certified Clinical Engineer, Professional Engineer, amateur radio operator.
- Inspired by Mort Schwartz and Malcolm Ridgway to follow clinical engineering. Convinced Wayne Morse that he should pursue a career in clinical engineering.
- Most Difficult Challenge:
  Surviving a collision with a Conrail locomotive. Bruce does better in the air with custom aircraft he builds and flies.

## Members in the News

Our hats are off to President Tom Bauld who was feted during Engineers Week at the 24th Annual Gold Award Banquet, February 22, 1995, in Dearborn, MI. Tom was presented the M.S.C.E. Standard of Excellence Award by the Michigan Society for Clinical Engineering. Congratulations, Tom.

## Publications

Two publications, *Guideline for Donating Medical Devices* and *Clinical Engineering World-Wide*, have recently become available. Both are a must for your reference shelf especially if you have an interest in the international healthcare field.

***ACCE Guidelines for Donating Medical Devices*** is the result of two years of work by an *Ad Hoc* ACCE Committee of the ACCE chaired by Alfred Jakniunas. The committee, responding to the countless failed attempts to effectively transfer technology on the part of well-intentioned relief organizations, compiled a set of practical guidelines that will satisfy both giver and receiver. The *Guidelines* are now available free to ACCE members. Others may purchase the document at the single copy price of $25. *Guidelines* may be ordered by calling or writing the ACCE Secretariat at 5200 Butler Pike, Plymouth Meeting, PA 19462-1298, (610) 825-6067.

***Clinical Engineering World-Wide*** is the first issue of the International Directory of Clinical Engineers published by the Clinical Engineering Division (CED) of the International Federation for Medical and Biological Engineering (IFMBE). Published in 1994, it is a comprehensive directory listing clinical engineers from 62 countries around the world. ACCE is a member society of the Clinical Engineering Division of the IFMBE and thus can make the directory available to its members for only $15 a copy. The price for non-members is $30. *Clinical Engineering World-Wide* may be ordered directly from the Clinical Engineering Division. Write to CED Secretary, 21 Bob's Lane, Setauket, NY 11733.

# Conference Reports

### *AIMBE*

Last Fall, Tom Bauld and Tom Judd traveled to West Virginia to attended the Summit Meeting of the Council of Societies of the American Institute for Medical & Biological Engineering (AIMBE). AIMBE is the umbrella organization that represents the interests of biomedical engineering at the national level. The Summit meeting provided an opportunity for leaders of the various engineering professional organizations to discuss their needs, concerns and ways in which AIMBE could serve its member organizations. A final report describing the conference was sent to you separately. The report summarizes the meeting and briefly describes each of the member societies. AIMBE plans to improve the awareness of congressional representatives and the general public of the contributions and value of our members. Although ACCE is the smallest of the organizations, it had equal opportunity at the Summit to participate and to explain clinical engineering.

### *MSCE*

The Michigan Society for Clinical Engineering sponsored their Annual Technical Conference on Electromagnetic Interference in Medical Devices, February 22, 1995. Coinciding with National Engineers Week, the conference drew 125 attendees to William Beaumont Hospital to hear leaders in the field discuss a topic that has soared to national and international concern. The proliferation of medical devices and of wireless communication devices raises issues of compatibility hitherto unknown. Bryanne Patail Director of Clinical Engineering at William Beaumont Hospital hosted the event. Tom Bauld served as MSCE Annual Meeting Director. Dr. Guy Knickerbocker, ECRI Senior Scientist, gave a general overview of the subject of EMI and EMC with a synopsis of reported problems. He reviewed FDA's past and present activities and offered ECRI's perspectives on actions needed. Erik Anderson, a specialist in EMC at Hewlett-Packard, discussed the characterization and measurement of EMI. He described the mechanisms of interference, a proposed method for assessment of field strength levels, equipment, and test results. He concluded with H-P's design and validation process. Terry Clemans, St. Margaret Mercy Health System, Hammond, Indiana, reviewed the activities of professional organizations and governmental agencies in addressing the problem. He listed standards, conferences and publications. He presented results of tests demonstrating EMI and adverse effects upon medical devices. He concluded with recommended actions. Dr. Joseph F. Dyro, President of the Biomedical Resource Group, Setauket, New York, spoke on the legal implications and the home health care perspective. He gave examples of EMI adversely affecting medical devices in the home and the resultant impact upon patients and families. He detailed the lack of user awareness of the extent of the EMI problem and called for guidelines for the layman who must use medical devices in the home environment.

# Feature Article: Safety Lead Wires

***by ECRI Staff***

As mentioned in the May 1994 issue of *ACCE news*, efforts to eliminate the exposed metal tips from electrode lead wires are continuing in an attempt to address the hazards of patient macro-shock and electrocution. On July 15, 1994, the Food and Drug Administration (FDA) Center for Devices and Radiological health (CDRH) held a public conference to solicit input concerning these hazards from users, manufacturers, and independent agencies. Over 150 participants attended the one-day conference.

In the morning session, introductory presentations were made by senior level FDA and CDRH personnel, followed by invited presentations given by representatives from AAMI, NFPA, HIMA, ECRI and others. In the afternoon, conference participants participated in breakout sessions that focused on the following FDA identified areas of concern related to unprotected patient cables and electrode lead wires:

- Extent of existing and potential problems and affected devices
- Education/training/communication
- Economic impact
- Corrective actions

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The afternoon plenary session then included reports from each of these breakout groups. This was followed by a question and answer session.

Most of the presentations were position statements or reviews of existing standards and practices that may be applicable to addressing the hazard of electrical shock and electrocution from unprotected electrode lead wires and cables. Speaking on behalf of ECRI, Mr. Mark Bruley, Director of ECRI's Accident and Forensic Investigation Group, presented the only technical paper. He summarized all of the known incidents to date based on a review of ECRI and FDA databases, combined with information from other ECRI sources. Over 350,000 files were reviewed.

ECRI determined that since 1985, there have been 24 confirmed accidents, five of which were fatal. All of the accidents involved neonates, infants, or pediatric patients. There were no incidents involving adults and no incidents involving any devices other than ECG monitors and apnea/respiration monitors. ECRI stated that a risk analysis of the history of these incidents does not support a need for regulatory efforts to extend beyond those monitoring devices that have only a limited number of leads, such as ECG monitors, apnea/respiration monitors, intraoperative EEG monitors, and defibrillator monitors. ECRI presented the perspective that replacement of the old hazardous lead systems for these devices alone, for which virtually all of the incidents have occurred or appear likely to occur, presents significant logistical problems and costs, but is indicated and justifiable for hospitals. ECRI further commented that the risk associated with the additional diagnostic and therapeutic devices under current regulatory consideration is minimal.

ECRI summarized its position by stating that regulatory efforts, if pursued, must focus on the use conditions and the devices for which macro-shock or electrocution from patient cables or lead wires have a reasonable likelihood of occurrence. It was stressed to the FDA that efforts must be balanced by an understanding of the realities of the health care setting and the related health care costs. ECRI concluded by recommending that corrective action should be limited in scope to addressing the hazards posed by those devices that have truly been involved or are likely to be involved in incidents and that such an approach would result in a real and quicker benefit to patients.

The manufacturers perspectives were presented by a representative of the Health Industry Manufacturers Association (HIMA). There was concern expressed that the major manufacturers of involved physiologic monitors and related lead wires have been addressing this hazard head on since 1987 by modifying their lead wire design. However, scores of third party cable and lead wire manufacturers have not been as quick to change. These third party manufacturers are typically small and will sell to a hospital anything that the hospital requests. As such, the manufacturers' perspectives were that any regulatory action considered for application must be enforced across the board, especially to the numerous third party cable and lead wire manufacturers.

Another concern expressed by the manufacturers was about the FDA's 510(k) approval process. At present, any significant change to a medical device requires resubmission of a 510(k) application by the manufacturer to the FDA to allow the modified device to be marketed. If manufacturers were required to resubmit a 510(k) application for each of their cable and electrode lead wire models that are to be improved with protected connectors, manufacturers estimated that literally thousands of 510(k) applications would be required, further inundating the FDA's currently overstressed application review process. Manufacturers requested that any consideration for modifying patient cables and leads be excluded from the need for a new 510(k) application.

Estimates of costs to hospitals to implement changes were heavily discussed. Cost issues that were discussed included the use of intermediate connector adapter blocks, modifying only those devices that have been involved in incidents, and modification of lead wires on all devices in the hospital. It was debated as to whether unprotected cables and lead wires from other devices that may be used in other areas of the hospital, e.g., neurodiagnostic centers and physical therapy departments, would migrate into those areas where monitoring devices were used. Participants with hospital experience felt that this was a very unlikely scenario and stressed this to the FDA. Overall, there was little detailed information avail-

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able on the costs that were likely to be incurred. However, the general consensus among hospital participants was that the costs were reasonably significant for addressing ECG and apnea/respiration monitors alone, and it was seriously questioned whether a positive cost-benefit would result from changing all of the leads on all devices in the hospital.

In May 1994, the FDA announced in the Federal Register its intent of advance notice of proposed rule-making in which they stated that development of a performance standard is necessary to reduce or eliminate the hazards of unprotected lead wires and patient cables. At the conference, ECRI stated that, performance standards and regulations aside, the fundamental responsibility for preventing this hazard rests with the hospital in its education and training of personnel and its equipment control programs. As an example, it was pointed out that the most recent electrocution incident (August 1993) occurred at an institution that had changed to protected cables and leads prior to the accident. It is unknown how an unprotected set of cables and leads came into use at that institution. However, other institutions that had also made changes to protective cables and leads had reported to ECRI that subsequent searches throughout the hospital revealed unprotected cables and leads having again, unknowingly, made their way into service, despite the hospitals' ban on them.

Any subsequent FDA regulatory action, if any, to address the hazard of shock and electrocution from patient cables and electrode lead wires will have authority on manufacturers only. Specific guidance for hospital action to address this hazard can be found in *Health Devices* 22 (5-6): 301-303, 1993, wherein ECRI states that only ECG and apnea/respiration monitoring devices need be equipped with protected leads and patient cables. ECRI informs *ACCE news* that intraoperative EEG monitors that have a limited number of leads, e.g. two to five, and defibrillator/monitors should also be considered for use only with protected leads and cables. *ACCE news* will keep you informed of further information on this topic as it becomes available.

# 1994 Internet Electronic Highway Guide

Patrick Crispen, an Internet expert at the University of Alabama at Tuscaloosa, has created an Internet course called Roadmap. Each of the 27 lessons takes about 5-10 minutes to review. It teaches you to use e-mail more effectively, how to access other machines worldwide, how to find the files and the programs you are looking for, and how to download them to your computer. Advanced lessons teach about "gopher", "telnet", and "Archie". Exercises are part of each lesson. All you need to participate is an e-mail address. Send a message to listserv@ua1vm.ua.edu to enroll. NOTE, the character between "ua" and "vm" is the numeral one, not the letter l. In the e-mail message, type **SUB Roadmap Firstname Lastname**, for example, SUB Roadmap Tom Bauld. Several minutes later, you will receive a reply from the U of A computer instructing you to reply **OK** to confirm your registration. Please sign up and become Internet smarter. At present you will be able to access its vast resources and in the future it will be used for ACCE member communications.

# Calendar of Events

AIMBE: The American Institute of Medical and Biological Engineering, The Fourth Annual Event, From Concept to Reality: Public Policy and Competitiveness of US Medical Device Technologies, March 13-14, 1995, The National Academy of Sciences Building, Washington, DC. Call (513) 556-4171 or fax (513) 556-4162.

ACCE Teleconferences: Technology Management in the Evolving Healthcare Environment, March 16, 1995, Anywhere you can get to a phone. Call (501) 370-6618 or fax (501) 771-1775.

Health Care Technology Policy II, The Role of Technology in the Cost of Health Care: Providing the Solutions, May 10-12, 1995. Call (408) 353-2349, e-mail: susanc@spie.org.

AAMI 30th Annual Meeting & Exposition, May 20-24, 1995, Anaheim, CA. Call 1-800-332-2264.

21st Annual Northeast Bioengineering Conference, May 22-23, 1995, Bar Harbor, Maine. Call (207) 581-2234.

ACCE 5th Annual Meeting, May 23, 1995, Anaheim, CA. Call (610) 825-6067

FDA/AAMI Electromagnetic Compatibility for Medical Devices: Issues and Solutions, May 24-25, 1995, Anaheim, CA. Call 1-800-332-2264.

Clinical Engineering Summer Institute, June 5-16, 1995, The Hartford Graduate Center, Hartford, Connecticut. Call 1-800-290-7637 or (203) 548-2450.

Model Based Biomeasurements - MBB '95, September 6-9, 1995, StarÃ LesnÃ (High Tatras), Slovak Republic. Call 011-42-7-374 033, fax 001-42-7-375 943, or e-mail: imeko@savba.sk.

FDA/AAMI Human Factors in Medical Devices, Sept. 12-13, 1995, Washington, DC. Call (202) 594-3558.

17th Annual International Conference of the IEEE Engineering in Medicine and Biology Society & 21st Canadian Medical and Biological Engineering Conference, September 20-23, 1995, MontrŒal, Canada. Call (514) 848-1133, fax (514) 288-6469, or e-mail: embc95@coplanor.qc.ca.

AAMI Regional Meeting, Oct. 14-17, 1995, Dearborn, MI. Call (313) 936-5056.

International Conference on Clinical Engineering, Oct. 27-28, 1995, Bolzano, Italy. Call 011-(39)(471) 908277 or fax 011-(39)(471) 908874.

11th Annual Technology Management Conference, Nov. 24-26, 1995, Chicago, IL.

Radiological Society of North America, Nov. 26-Dec. 1, 1995, Chicago, IL.

# Editorial

Hey buddy, you think you have problems? I think of the clinical engineer who was asked to reengineer the hospital system for which he worked. His productivity improvement plan saved the system millions. His reward? A pink slip and no gold watch. I think of another comrade, 150% a professional, viciously maligned by naysayers and wannabes. I see another who spoke out for what she believed vilified and denigrated by a clique formed of jealousy, ignorance and greed. I want to offer the following words of encouragement, challenge, and hope; they are not my words, however, but they should surely suffice. I had the good fortune this morning to happen across the following from Thomas A. Kempis:

*"It is good for us to encounter troubles and adversities from time to time, for trouble often compels a man to search his own heart. It reminds him that he is an exile here, and that he can put his trust in nothing in this world. It is good, too, that we sometimes suffer opposition, and that men think ill of us and misjudge us, even when we do and mean well."*

Many, many years ago in Maine I attended Portland High School, the second oldest high school in the United States. Sage advice was written above the stage of the auditorium, advice that at that time meant

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little to a carefree youth. Public education has changed radically, the student body is just about as properly diverse as any politically correct administrator could wish for, and the old school has been gutted and renovated: but the words above the stage remain: *"Study to shew thyself, approved unto God, a workman who needeth not to be ashamed, rightly dividing the word of truth."* Do the best you can with what you have. Do not be afraid. Take the initiative in times such as these. Richly rewards await no matter how you measure success. I have seen a good amount of uncertainty and fear spawn timidity and paralysis up and down the line in the healthcare establishment. More than at any other time, the world needs engineers, those wonderful beings that turn ideas into reality. If it's the business of health, promoting it, keeping it, restoring it, and allowing it to fade away with dignity, then it's the clinical engineer that will be in the vanguard with innovation and common sense.

It has been a pleasure putting this newsletter together. I thank the Board for the privilege of serving ACCE in this way.

# ACCE Teleconference Survey

Based upon the first three conferences, the program has been an excellent service to our members. At the March conference, there were 11 sites on-line with over 50 participants.

The ACCE Education committee is planning the second set of teleconference programs and would like your input.

Please complete this survey and Fax it to James Wear at 501-771-1775 by **April 14, 1995**

Indicate which topics you would participate in an audio conference (1 = first priority, 2 = second priority, ...)

_____ Contract management
_____ Maintenance insurance
_____ Information systems
_____ Productivity improvement
_____ JCAHO topics
(specify)_____
_____ Benchmarks
_____ Quality improvement
_____ Project Management
_____ Financial Management
_____ Outsourcing
_____ Marketing your department
_____ Technology assesment
_____ New opportunities for clinical engineering

List other topics:

_____
_____
_____
_____

List who you want as a speaker:

_____

At what price would you buy the audiotape and handouts from an audio teleconference: $ _____

What has prevented you from participating in the audio teleconference program?

_____ No speaker phone
_____ Not interested
_____ Too expensive
_____ Other _____

Fax your completed survey to Jim Wear at 501-771-1775.