

ACCE News

Vol. 10, No.2- March 2000

Do You Know the Way to San Jose?

3rd ACCE Symposium on Medical Telemetry June 3, 2000

Experts from government, industry and the hospital community come to grips with medical telemetry. How will frequency allocation affect you? What about interference? See back cover!

ACCE General Membership Meeting June 6, 2000

Join your colleagues at a wine & cheese reception followed by our Annual Meeting. It's a good time to express your views and maintain contacts.

ACCE NEWS FEATURES

ACCE Certification

ACCE Ad Hoc Committee on clinical engineering certification looks to ACCE to pick up the ball. p. 9

Medical Errors

Joe Dyro sees the IOM report as a challenge to all clinical engineers. p. 3

CE on Planet Earth

New Column! Enrico Nunziata launches this probing look into clinical engineering around the planet. p. 11

Bothered by White Tape?

Technical Iconoclast Eben Kermit warns of sticky hospital safety threat! p. 15

INSIDE THIS ISSUE

⇨ 2 President's Message	⇨ 11 Clinical Engineering on the Planet
⇨ 3 Get on Board the Safety Train!	⇨ 12 Clinical Engineering Internship
⇨ 4 Meetings	⇨ 13 ACCE Board Meeting Highlights
⇨ 7 On the Move and In the News	⇨ 15 Control Medical Adhesive Tape
⇨ 8 The View from the Penalty Box	⇨ 16 Opportunities: ACEW Faculty
⇨ 9 ACCE Certification	⇨ 18 Kermit Konversions
⇨ 10 Engineering Week & Advocacy	⇨ 19 Calendar of Events
⇨ 10 ACCE Teleconferences	⇨ 20 Third ACCE Symposium

ACCE News

21 Bob's Lane

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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 Web Page

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

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President's Message

Jennifer C. Ott, MSBME, jennifer.ott@tenetstl.com

Okay, I have decided I am way too wordy for President's Messages. However, I want to make sure the membership is current on the developments within ACCE and learns what activities the Board is involved. So I will try to be brief...

We have a lot of exciting, revenue generating adventures our members are involved with:

1. WHO has contracted with ACCE to coordinate the INFRATECH Internet discussion group. Al Jakniunas has agreed to be the coordinator at this time. WHO will be providing funds so that ACCE can purchase the required tools to complete this work. If anyone is interested in joining the listserv please contact Al at Ajakniunas@hushosp.org.
2. WHO has contracted with ACCE to a) develop an annotated curriculum outline for a 1 week and 2 week ACEW, and b) prepare an outline and a concept of developing an ACEW textbook with full lectures. Those who have previously participated, please provide Joe Dyro and Jim Wear the requested information ASAP, as this is lucrative for ACCE.
3. PAHO is sponsoring a faculty member for the Dominican Republic and World Congress ACEW. This also includes recognition to ACCE for their assistance in putting these two programs together.

George Johnston has been beating the path for remarketer needs. Many of you already know that ACCE developed an Equipment Donation Guideline a few years back. Because of George's trip to Mexico (see report in Sep/Nov issue of ACCE News) the ethical issue of remarketers has been brought to light. George is working with the original committee members from the donation guideline to see what other document we can develop to meet the needs of our international counterparts when procuring equipment.

I am sure many of you are aware of the recent medical error discussions taking place in Washington. One of our local members, Al Jakniunas, has been involved with Senator Specter's proposals. He is working with George Johnston and other ACCE members who expressed an interest in this subject in developing an ACCE position statement on this subject. This will certainly be a hot topic during election year and we need to make sure ACCE is a voice that is heard.

We are getting into that meeting season time of year...

For those of you who will be attending HealthTech please stop by the ACCE booth and look for signs regarding the General Membership Meeting which will take place on Monday night. Binseng Wang has done a bang-up job organizing the clinical engineering track for ACCE. A BIG THANK YOU!

ACCE is again hosting the Symposium in conjunction with AAMI. We will be having our wine and cheese reception and general membership meeting which usually occurs on Tuesday night. Further information forthcoming!

I look forward to hearing from you and hopefully seeing you at our upcoming meetings. If you have any questions or comments please let me know.



Jennifer Ott

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Get on Board the Safety Train

Joseph F. Dyro, dyro@alum.mit.edu

As usual, visionary Marv Shepherd, in his article in the May 1999 ACCE News, was right when he predicted that the National Patient Safety Movement is gaining momentum. My friend Marv, a world-renowned expert in medical device systems safety, issued a wake-up call to clinical engineers as he identified what has suddenly emerged as the rapidly growing patient safety movement. He reviewed a growing body of evidence that adverse events occur and are often unreported. Furthermore, many hospitals do not vigorously investigate such events in order to prevent their reoccurrence. He pointed to opportunities for clinical engineers to excel in patient safety by utilizing human factors and systems engineering along with medical device expertise.

So, it should come as no surprise that a committee of the Institute of Medicine (IOM) promotes a national agenda for reducing medical errors and improving patient safety through the design of a safer health system in the book, *To Err Is Human: Building a Safer Health System*, National Academic Press, 1999. For details on the publication go to <http://www.iom.edu>. The book may be downloaded into your computer. The book's key theme is that legitimate liability concerns discourage reporting of errors. Learning from mistakes may require some creativity. I am aware of at least one anesthesia department with a rather advanced anesthesia information system that keeps two records, one for the official hospital record, the other for teaching purposes, i.e., learning from mistakes.

The book reports that upwards of 120,000 people die each year from medical errors in hospitals. Unfortunately, the number who die from causes in whole or in part from medical devices is unknown. Most studies of adverse events blame devices only when an outright failure has occurred. Technical complications are usually attributed to human error. Human error is inextricably linked to medical device design, however. Designing devices that can be easily, safely and effectively used in a crisis is the goal. I could elaborate but will leave that to my colleague and fellow JCE editor Dr. William Hyman whose work on human factors was cited in the IOM document. Employing Shepherd's system technique for medical device incident investigation, human error can often be a result of a device lacking good human factors design.

The inexorable and rapid increase in the application of technology in health care is at the heart of the increase in adverse events. There can be no doubt as to the upward surge of technology as I witnessed during my recent stint as a juror in the Medical Design Excellence Awards program sponsored by Canon Communications. Hundreds of products from

The ACCE Board

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Letters

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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.

ACCE News

surgical implants to over-the-counter home health aides vied for best design. Attendance soared at the world's largest business-to-business trade show for medical OEMs - Medical Design & Manufacturing (MD&M) West 2000 - and the Pacific Design Engineering Show. Proliferation of technology combines with the forces of legislation, regulation, and market pressures to influence the quality of care. The IOM document attributes the high level of human error to good people working in bad systems. It advocates improvements in areas of leadership, data collection and analysis, and systems at the level of direct patient care.

Medical errors have been around since the first bore hole was made in the skull of an ancient Egyptian in the time of the Pharaohs. One might quibble over the number of people that die each year from medical errors. The 120,000 figure reminds me of the 12,000 figure that surfaced over thirty years ago, the number of hospital patients that die each year from electric shock. The latter figure has never been substantiated but it certainly did wake up a lot of people to the issue of medical device safety. Clinical engineers and biomedical engineering technicians owe a great deal to the media hysteria of the late sixties concerning electric shock - we have jobs. I envision many clinical engineers will board the train to design hospital safety systems, investigate root cause of adverse events, lead device standardization committees and create device education programs.

As I read the IOM report I heard echoes of ECRI's Joel Nobel, my first boss, who espoused the principles delineated in the report three decades ago. Familiar were many of the

committee's recommendations: standardization of medical devices, user training programs, accident/incident investigation and reporting systems, selection of devices for simplicity and ease of use, hospital safety programs. Many of us have been doing the right thing for decades. BMETs and clinical engineers are in a unique position to contribute to the body of knowledge regarding incidents, especially those related to medical devices. Now that the safety train is rolling we should get on board.

Do not underestimate the clinical engineer's role in all this. Consider the following from the IOM report: *"Because of the immense variety and complexity of medications now available, it is impossible for nurses or doctors to keep up with all of the information required for safe medication use. The pharmacist has become an essential resource in modern hospital practice."* In the above sentence, replacing *medications* with *medical devices* and *pharmacist* with *clinical engineer* gives a clear picture of the reality:

"Because of the immense variety and complexity of medical device now available, it is impossible for nurses or doctors to keep up with all of the information required for safe medical device use. The clinical engineer has become an essential resource in modern hospital practice."

Sounds good to me; how about you?

Meetings

ACEW in Chicago

The 22nd Annual International Conference of the IEEE EMBS is being held in collaboration with the World Congress on Medical Physics and Biomedical Engineering at the Navy Pier in Chicago, Illinois from 23-28, July 2000.

EMBS is pleased to announce the following pre-conference workshop organized by the American College of Clinical Engineering, the Pan American

Health Organization and the World Health Organization:

Acquisition of Medical Equipment: An Advanced Clinical Engineering Workshop

The workshop will be conducted 21-23 July 2000 at the Hyatt Regency Chicago on the Riverwalk.

Detailed information regarding this workshop can be found at:

http://www.bme.uconn.edu/EMBS_2000/EMBS_2000.htm

Registration for these workshops can be completed at: www.bthere.com/ersengine/wc2000embsworksops

We look forward to seeing you in Chicago!

Advanced Clinical Engineering Workshops Past & Future

Joseph F. Dyro, dyro@alum.mit.edu

I just returned from Santo Domingo, Dominican Republic, site of the 9th ACEW (A full report on this will appear in the next issue of *ACCE News*) It was felt that a history of the ACEWs was in order. Several faculty members, gathered together, still talking into the wee hours of the morning, volunteered to co-author a paper summarizing the ACEWs and presenting the impact that these have had on the development of clinical engineering in the USA and around the world.

Past Workshops

1. Washington, DC, USA - June, 1991
2. Boston, Massachusetts, USA – May- June 1993
3. Beijing, China – November 1995
4. Washington, DC, USA – June 1996
5. Mexico, Mexico – November 1998
6. Hartford, Connecticut, USA – June 1999
7. Moscow, Russia – September 1999
8. Cape Town, South Africa – November 1999
9. Santo Domingo, Dominican Republic – March 2000

Future Workshops

10. Chicago, Illinois, USA – July 2000
11. Vilnius, Lithuania – September 2000
12. Panama City, Panama – October 2000 (approximate date)
13. Lima, Peru – March 2001- approximate
14. Nepal – April 2001
15. Caracas, Venezuela - Fall 2001 (approximate date)
16. Central Asian: Kazakhstan, Kirgizstan, Mongolia, Tadjikistan, Turkmenistan, Uzbekistan (TBD)
17. Moldova (TBD)
18. India (TBD)
19. Ukraine (TBD)
20. Russia (TBD)
21. Armenia (TBD)
22. Jamaica (TBD)

Quality of Healthcare and Medical Errors

Alfred Jakniunas, AJakniunas@huhosp.org

On February 23, 2000 in Washington, DC, from 9 to 12 in the morning, Senator Arland Specter's subcommittee on Quality of Health Care and Medical Errors was convened. The American Nursing Association presented their view. John Eisenberg, M.D., director of the federal Agency for Healthcare Research and Quality spoke. It was mentioned that the cost to US is \$17-29 Billion/year due to medical errors and 98,000 deaths result each year. This is the 8th leading cause of death.

Specter has submitted a bill entitled the Medical Errors Prevention Act 2000. There was mention of selecting 100 hospitals for the study to occur over the next three years. The Veterans Administration and the Defense Department are already implementing programs. The Institute of Medicine hopes to reduce these errors by 50% in 5 years. AHA is against mandatory reporting. The FDA requirement for pre-use checkout instructions on anesthesia machines was cited as an example of a useful step toward error prevention.

President Clinton spoke at 1:00 PM on medical errors.

ACCE should be involved at this early stage. Human Factors is an area where we have particular expertise. Checking to see if equipment is checked before use. Last JCAHO inspection I was asked to go to four different areas and bring back information on who and what training is being done related to patient equipment and demonstrate that maintenance and training for operators exists. Six pieces of equipment was picked randomly in each area. If you want to know the results of this exercise, read all about it in the next issue of *ACCE News*, 10:3, May 2000.

Imaging and Health Technologies Named in Top 20 of 20th Century

On Tuesday, February 22, at the National Press Club in Washington, D.C., Neil Armstrong, the first man on the moon and an engineer, announced the Greatest Engineering Achievements of the past century, as selected by the National Academy of Engineering. Armstrong's speech, telecast on C-SPAN, culminated a year of activities where engineering societies nominated engineering achievements. AIMBE polled its membership and submitted nominees, which were reflected in imaging (#14) and health technologies (#16) making the top 20 list. To see full details on the top 20, go to www.greatachievements.org.

For excerpts of Armstrong's speech: www.eweek.org/2000/News/Eweek/armstrong.html

This activity was part of National Engineer's Week, which AIMBE and ACCE endorses. The main site can be visited at www.eweek.org/index.html.

INFRATECH Meets in DC

Alfred Jakniunas, AJakniunas@huhosp.org

The INFRATECH LISTSERV was created in January 1999 by Dr Andrei Issakov, Coordinator for Health Facilities and Services Provision, Department of Organization of Health Services, World Health Organization, Geneva (WHO-HQ/OSD) and Antonio Hernandez, Regional Advisor for Health Services Engineering and Maintenance, WHO Regional Office for the Americas/Pan American Health Organization, Washington, D.C. (WHO-AMRO/PAHO) as an Internet discussion group for exchange of information on health care infrastructure and technology for health services. The project is sponsored by WHO/HQ-OSD and WHO-AMRO/PAHO, and coordinated by

ACCE News

American College of Clinical Engineering (ACCE).

After its first year of operation, a meeting was held in November 1999 in Washington, D.C. to review the progress against originally set objectives and outline the INFRATECH goals and action plan for the year 2000. The participants were Dr. Andrei Issakov, Dr Peter Heimann, Medical Research Council of South Africa / WHO Collaborating Center (MRC), Eng. Antonio Hernandez, Dr. Yadin David, American College of Clinical Engineering (ACCE), Eng. Alfred Jakniunas, ACCE and INFRATECH Coordinator, Eng. Frank Painter, ACCE, Eng. Jonathan A. Gaev, ECRI / WHO Collaborating Center and Henry Muñoz

Information Technology Support PAHO/WHO.

During the meeting it was decided that the purpose of the Infratech discussion group would be to provide a forum for global exchange of information regarding infrastructure and technology for health services. Information gathered through this exchange could then be used in developing a "knowledge base" for use in future projects. Development of database information for members concerning upcoming events, publications, and educational information is planned to be available by the second quarter

The membership group is composed of 80 experts with different background in Healthcare Infrastructure

and Technology from 30 different countries. The group is planning to present many items for discussion which are critical for many countries in introducing new medical technology or developing effective health care infrastructure such as technology management and assessment and infrastructure development.

New participants interested in sharing experiences or learning from others are welcome to join the group. To subscribe send an e-mail to LISTSERV@LISTSERV.PAHO.ORG. In the text portion enter SUB INFRATECH full name. Messages are sent to INFRATECH@paho.org and will reach all members.



Gaev, Painter, Issakov, Hernandez, David, Heimann, Jakniunas (l to r)

On the Move and In the News

Harrington to TiM

David P. Harrington of Medway, MA has joined the staff of Technology in Medicine, Inc., Milford MA (TiM) as Director of Special Projects. Harrington, who had been consulting to TiM on Y2K issues, joined the TiM staff on February 1, 2000. TiM President, Raymond Peter Zambuto indicates that Mr. Harrington will be spearheading an effort by TiM to establish biomedical-training joint ventures with schools and colleges throughout New England. According to Zambuto, "There is a developing shortage of properly trained entry-level technicians. We hope that Dave's efforts will help abate this situation, not only for TiM, but for in-house programs and other independent service organizations in the Northeast."

Mr. Harrington is a well-respected clinical engineer, teacher, and commentator. Over a career that spans four decades, he has mentored hundreds of biomedical technicians as Director of Clinical Engineering at Tufts-New England Medical Center and Franklin Institute of Boston. He is a regular contributor to *24x7* magazine and an active member of the American College of Clinical Engineering. His column, **The View from the Penalty Box**, is a regular feature in *ACCE News*.

TiM is a full service asset and technology management firm in Milford, MA providing biomedical service to hospitals and health systems throughout New England and South Florida. The company creates custom solutions to provide significant cost savings to its customers while adhering to high standards of compliance and excellence.

Last
Issue of
**ACCE
News**
unless
you
have
paid
your
dues!

All ACCE members are urged to check their records of dues payment. If you have not paid your ACCE membership dues for 2000 please do so now. Send your check made payable to ACCE to

*Henry Montenegro,
ACCE Treasurer
7911 79th Way,
West Palm Beach, FL
33417*

Biomed Bubba Boasts

One of my most trusted regular correspondents reported recently that he encountered a chap who billed himself as having the following credential:

**Certified Biomedical
Engineer #4400**

Beware of these Bubbas!

New Mexican BES Head

Adriana Velázquez was inducted as the new president of the Mexican Biomedical Engineering Society.

ACCE News

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

The New Year came with minor problems reported with medical devices but major reported problems with deaths in hospitals due to human mistakes. Here in Massachusetts we have another health care crisis developing where the biggest HMO in the state is in receivership with a shortfall of \$174 million and counting. This does not include the \$300 million that hospitals say the HMO owes them, for services rendered. Add to the mix physician practices switching hospitals on short notice, a major hospital group accused of trying to force a smaller hospital to close and the ingredients for an interesting year are in place. Since 2000 is an election year we do not expect any leadership from the politicians. I am not sure what the motto for our healthcare problems in this state should be but several come to mind "What, me worry?" is the clear leader at this time followed by "I know nothing" with "Who's in charge here?" bringing up the rear.

The dysfunctional healthcare system needs to look to the computer industry of the 80's to find a path to the future. Basically I am saying, Bill Gates, we need you or at least your business practices. Regardless of what the politicians say the FDA is a paper tiger when it comes to medical practices. Yes,

they approve drugs, about 90 for every ailment. Yes, they approve devices; but only if they don't push the envelope of technology. JCAHO is a joke as they have so little influence over what goes on in healthcare except that hospitals do get cleaned once every three years. As long as the creative writing for the policies and procedures looks good the hospital passes. All that HCFA does is to slow the introduction of new technology and procedures that can reduce the 40,000 plus killed by medical mistakes every year. The insurance companies just want your premiums so don't get sick or you get cancelled or priced out of the plan. So, Bill, now that you are no longer running Microsoft, how about running healthcare?

- No more committees to develop standards, Bill will let the market dictate with a little guidance to be sure his software is the one used.
- No more cumbersome codes to be keyed in for billing, everything is priced the same.
- No more worries about incidents as the "hide" function is on every screen.

- Too many beds? Just click and drag to the left. Need more beds? Click and drag to the right.

Just think. With everything computerized and with a few robots we can reduce the number of physicians, nurses, technologists and other personnel that make our jobs difficult. With Bill in charge we can drive down the costs, keep us techno-people in power and making money. But best of all, when things get really screwed up, there are the magic words that correct all problems,

Control-Alt-Delete plus the ever popular Reboot.

Anyone have any other nominations for the health care czar?



ACCE Certification

Frank R. Painter, MS, CCE,
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CEC Committee Chair

ACCE is preparing to submit a proposal to the ICC and USCC requesting that ACCE assume responsibility for the Clinical Engineering Certification program. ACCE has formed a committee to review the state of affairs of clinical engineering certification, including the reasons that certification was suspended, the measures we need to take to remedy any problems that existed with the previous program and cost of putting a good program in place that will be sustainable into the future.

The committee recently sent an e-mail questionnaire to all ACCE members asking two questions: (1) "Are you in favor of ACCE assuming responsibility for the CE certification program now that AAMI has asked the USCC & ICC to suspend it?" and (2) "If you are certified would you pay a periodic renewal fee to ACCE to keep your certification?" 96% of the 73 respondents said they would like ACCE to proceed with this project. 99% of the respondents would either renew (58%) or were not certified (41%).

The committee has put a business plan together that will be submitted to the ACCE Board of Directors for approval and then forwarded to the USCC and ICC for review. The process that we expect to follow will start with an evaluation of the practice of clinical engineering, as it now exists. That is defining what clinical engineers do, itemizing the categories of activity and the tasks they perform.

This is called defining the body of knowledge. This information will be obtained by questioning those actively involved as clinical engineers. The information gathered will be verified by a reputable clinical engineering benchmarking organization. Test questions will then be developed to test an applicant's knowledge of these categories and tasks. These questions will then be used to construct an exam to be used to test applicants. The benchmarking firm will also review the final exam questions.

This process is designed to reshape the clinical engineering certification exam into a meaningful, up-to-date and independently verified test of a practitioner's knowledge and experience in the field as it now exists. This written test combined with an oral exam will be the tool used in a peer review process to identify individuals who are thoroughly knowledgeable in the field of clinical engineering based on the current body of knowledge.

The other task the committee is working on is to determine the financial viability of establishing a certification program in today's era of changing health care and healthcare technology management. The program that we establish must be sustainable. The results of the e-mail questionnaire clearly indicate that ACCE members want a clinical engineering certification program to exist. It was said that having a certification program enhances the creditability and professionalism of clinical engineers. So it is clear that having a program in place is desirable. The next step is to see if we can rally those who are certified to renew and support the existence of the program and to rally those who are not certified to step forth and try to become certified. If this can be done the program will be financially sustainable in the long run.

The start-up costs to reorganize the board of examiners, establish a new secretariat, determine and verify the body of knowledge, write a new exam based on the updated body of knowledge and promote the value of the process to certified clinical engineers, to clinical engineers who are not certified and to those in the healthcare profession for whom they work will be significant. The plan calls for raising seed money primarily from outside sources to cover start-up costs. These start-up costs could be in excess of \$10,000 and will be a one-time expense for which ACCE will need to find outside funding assistance. It is this start-up cost that may be the pivotal issue for the clinical engineering certification process. If the other parts of the plan make sense we will proceed to raise seed money.

The committee will need the help of *all* members of ACCE in two phases of the process. We will ask for your input as we try to define the categories of activities and tasks performed by clinical engineers. A few months later we will ask for your help devising questions that can be used to examine candidates on these activities and tasks. We look forward to your assistance. We sincerely hope that this project will give the profession a boost by redefining the role clinical engineers have adopted as a result of the recent changes in the healthcare field and by giving us the impetus to promote our profession to administrators, physicians and other health practitioners.

ACCE News

Engineering Week & Advocacy

Caroline Campbell, cac1@mhg.edu

As Engineering Week rolls around each year I struggle to find the right balance between recognition of staff, learning activities, and advocacy of the clinical engineering profession to the healthcare community and the community at large. Recognition activities for the Biomedical Engineering staff aren't difficult to arrange with the generous support of our vendors. Recognition activities such as luncheons are also not difficult to schedule such that they occur within the defined week. Being in an urban area, it is also relatively easy to locate local talent to participate in lectures and educational activities during Engineering Week. On the other hand, advocacy activities are much more difficult to coordinate within the structure of Engineering Week.

For years I have promoted clinical engineering during Engineering Week by dispatching staff members to patient care areas where they have entertained questions and discussed the role of clinical engineering in healthcare. Reception of this activity historically has peaked when these visits are made around mid-day when direct caregivers are taking a break from their work activities. The department has also arranged visits to area high schools during Engineering Week to advocate for the profession. This has always been an awkward exercise since the school must schedule around Engineering Week. This results in a disruption to the school and an appreciative but unreceptive audience that gleefully enjoys the break from classes but doesn't necessarily enjoy the presentation. Following this effort, I'm left with the impression that the school has accommodated me rather than me accommodating the school.

With this in mind, my new approach to Engineering Week is to accept an imbalance between recognition, learning, and advocacy activities, recognizing that while each of these are all year-long activities, they each have their own natural rhythms. I have come to understand that advocacy activity outcomes are optimized by coordinating those activities around the audience's schedule rather than around Engineering Week.

Opportunities to be an advocate for clinical engineering within the healthcare community arise each and every day in the form of demonstrating the value of clinical engineering through our daily work. This approach fits perfectly with that audience's schedule and hence improves their reception. Opportunities to advocate to the community at large are not necessarily as routinely available although the opportunities are plentiful. I believe that activities involving impressionable youth are most fruitful. The Washington Hospital Center participates in youth mentoring programs and partners with a local high school for work exposure. I have involved my department in these activities throughout the year and have found the audience to be much more receptive to this approach. Independently, I have young children of my own whose schools and scout troops also welcome this type of involvement. These advocacy opportunities are favorites of mine, of course because they involve my own children, but also because the dreams of this younger audience are not yet confined by the realities of educational dollars and effort. I find that if I can capture their attention, it is easy for them to imagine themselves as clinical engineers.

It wasn't easy for me to accept this imbalance between recognition, learning, and advocacy activities during Engineering Week partly because

diminishing the contribution of advocacy during that week diminishes the overall celebration of Engineering Week. My intent next year is to bolster the other activities to compensate and I'm looking to my colleagues for fresh ideas to incorporate into the celebration at the Washington Hospital Center. How do you celebrate Engineering Week? How would you like to celebrate Engineering Week?

ACCE Teleconferences

*James O. Wear, Ph.D.
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We do not have a series of topics yet, but should have them developed shortly. The series will consist of 7 audioteleconferences starting in June and finishing in December. They will be on the third Thursday of each month at 12 noon Eastern Time. They will be for one hour and handout materials will be sent to participating sites before the teleconference.

The price will still be \$125 per teleconference for up to four attendees with a charge of \$10 for each additional attendee. The price includes the phone charges, a master copy of handout materials and CEU certificates. Payment can be made by credit card, purchase order or check.

Some sites invite participants in from other hospitals or members of the local biomedical society.

Any questions or suggestions for speakers can be addressed to James O. Wear at 501-257-4175, Fax 501-257-4190 or wearjam@lrm.va.gov or wearjames@hotmail.com

Clinical Engineering on this Planet Earth

Hi there. My name is Enrico Nunziata, and some of you already know me and, maybe, others heard me screaming around the world. Some months ago, Joe Dyro asked me to take care of this column where international biomedical/clinical issues, especially those related to clinical engineering activities in developing countries, should have a home. After much delay, starting from this issue and with the fundamental contribution of some colleagues of mine, we would like to keep you informed on what is going on in those remote areas of the Planet. The main idea underlining the contents of this column is to provide you not only with a list of events, strictly biomedical engineering technical issues, or with a mere accounting of successful or less successful biomedical engineering stories, but with an holistic view of the engineering aspect in medicine. The idea is to be critical, provocative, but most of all to try to propose new horizons in order to improve the present situation. We hope, in this way, to stimulate your curiosity, and, even more, we would like that those who work in similar environments and feel they have something to "scream" would contact me (engbio@botte.net) or send me your proposed article to be placed in the pipeline. Thank you very much for reading and contributing.

Projects, Program, Budget Support, SWAp and Clinical Engineering

Enrico Nunziata, engbio@botte.net

Some time ago I read the following: "In 50 years \$1 Trillion in aid to poor countries... failed spectacularly to improve the lot of its intended beneficiaries" (*The Economist* June 26th, 1999, page 24)." This phrase hit me and made me to think a lot. I have been in this business of development for many years now and I saw plenty of projects and waste. Waste! Projects implemented on exclusive donor desire; activities unrelated to the beneficiary's real needs performed by small interested groups; goods sold or imported for the benefit of the few (both from the beneficiary and the donor side); huge investments implemented without the minimum concept of cost-benefit analysis or minimum follow-up. If there is follow-

up, it is generally performed by some people or big consulting companies, which most of the time have no idea of the project or little knowledge of the developing environment. Someone could ask what this has to do with clinical engineering and in my opinion the statement reported in *The Economist* has a lot more to do with engineering than anybody could think of.

Let's think about the hundred of millions of dollar wasted in futile, not used, technologically not appropriate equipment brought into developing countries via the myriad of projects proposed by donors and lending agencies. Indeed, up to now, most of the development aid has been done via projects, small or big, for long or short period, directly managed by the donors or assigned to an executing entity, but just projects. Projects with a defined time frame, with a list of results to achieve and with a series of indicators to show the projects reached the results and they are good. For what; for whom? Indeed, more than once, projects are designed for a closed environment with specific personnel implementing them, with a limited number of interested people sometimes only the few involved in the project. Very few projects that I know of have been capable of being part of a more complex and articulated environment where the participation of several actors and institutions, even if limited, contributed to a clearer and sustainable development.

Sustainable development, this phrase along with other "correct" ones are the new logos of today's development, but could the project approach deliver this expectation? Today a new formula is coming across the development arena: Sector Wide Approach Program (or in a more laymen terms, Budget Support). The SWAp or budget support is nothing else than the way western countries operate, i.e., the Ministry plans a sector wide program based on known needs, defines strategies, sets priorities based on established criteria and estimates cost for short and long term implementation. Once the plan is ready the Minister proposes the plan to the government and once approved, based on the money allocated, implements the program following the established priorities. I guess nothing is new about it, this is the correct way to manage a business, a Ministry, and a country. But donors generally do not like to see their money go unrestricted to a beneficiary and mixed with others' money. Therefore, they have been creating mountains of projects, which are all over the world. As an aside on projects, once the Ministry of health of a developing country said that he was not the Minister of Health but the Minister of Health Projects.

Naturally budget support is not the panacea of all the problems related to missed sustainable development during the last 50 years. On paper, budget support has more to say¹ since it is integrated and is the government program, but willingness

¹ "A guide to sector-wide approaches for health development" by Andrew Cassels – WHO/ARA/97.12 -

from the beneficiary side to lead this process is not so evident. Moreover, donor-funding systems, controlling mechanisms, auditing issues, activities and results monitoring and periodical evaluation procedures must be thoroughly discussed and clearly put on paper. On the other hand, SWAp does not mean the end of projects, but the integration of them into a national and rational development plan. Indeed, small projects are extremely important since entities and individuals involved can reach out to peoples and places where the same government will never arrive, nevertheless they must follow the beneficiary's short- and long-term objectives.

To conclude this short comment on projects and SWAp and to return to Biomedical Engineering, I am certain that we are responsible for part of this process even if most of us, at present time, are involved in projects. We need to see the biomedical projects, or any other project related to Asset Management (AM) not as a specific sub-sector or limited area project, but as a major component of the health care system. We need to reach out to the clients (yes, the clients and not the beneficiaries, which are the patients) of PAM services, i.e., the medical, paramedical, the administrative personnel, the decision-makers in the Ministry and any other participant in the process to deliver health care. We need to introduce AM concepts into the everyday health care services to avoid the mistake of the past that maintenance is just the technician in some isolated area outside the health structure who is running a junkyard of hospital assets.

I had the opportunity to participate in the design of the Maintenance sub-sector SWAp with earmarked funds in Mozambique. At this point in time, the Department of Maintenance of the Ministry of Health of Mozambique is starting to implement it and most of the donors agreed to align their projects in the maintenance sector with the general plan developed by the Department. Needless to say the major difficulties so far have been to convince the administration machine that they have the money (and not in some separate, project controlled, bank account) and that procedures must be followed but with some speed avoiding the notoriously bureaucracy of the system. Capacity building appears to be in place since the machine is run by the conjugation of all the actors in the Ministry and Directorate of Health at the Provincial level.

Only in few years down the road concrete evaluation could be made, even if periodical monitoring and assessment is in place, but the road has been open toward the SWAp. Only time, along with the beneficiary's conviction and well doing, will tell if the new approach paid off and substantial development was reached. Now it is time that not only bilateral donors agree with this way of thinking but also lending agencies whose investment projects have been, in many cases, far away from being cost-effective and sometimes in disagreement with the very same indications provided by them².

Clinical Engineering Internship

lgieras@harthosp.org (Izabella Gieras)

Clinical Engineering constitutes one of the most diversely rich research areas embraced by the field of Biomedical Engineering. It encompasses the application of engineering and managerial skills to healthcare technology for ultimate support and advancement in patient care. Research in biochemical engineering, bioinstrumentation, biomaterials, biomechanics, biomedical imaging, ergonomics, neurobiology to name a few, forms an excellent relationship with the world of clinical engineering.

University of Connecticut offers a hospital-based, two-year *Clinical Engineering Internship Program*. This program includes Hartford Hospital, the University of Connecticut Medical Center, Yale/New Haven Hospital, and the Baystate Medical Center in Springfield, Massachusetts. Clinical Engineering Internship was first established in greater Hartford area in 1974 between Trinity College and the Hartford Graduate Center and moved its academic affiliation to the University of Connecticut in 1997 with the creation of the Biomedical Engineering Alliance for Connecticut (BEACON). Students accepted into the program earn a Plan A MS in Biomedical Engineering, from the University of Connecticut, which requires a minimum of 24 credit hours of course work and Thesis. A BS degree in either engineering or physical sciences or mathematics is a prerequisite for admission to the BME Program at the University of Connecticut. The homepage of the Biomedical Engineering Program at the University of Connecticut is www.bme.uconn.edu.

BEACON, the Biomedical Engineering Alliance for Central Connecticut, is a unique collaborative arrangement among both private and public institutions including Trinity College, University of Connecticut-Storrs, University of Connecticut Health Center, University of Hartford and the medical institutions mentioned above. It is supported by the *Whitaker Foundation grant*. Students in the Clinical Engineering Program have the choice of participating in classes held at all of the academic institutions associated with BEACON.

The Clinical Engineering internship program offers an indispensable, in-depth clinical and engineering opportunities gained from constant exposure to the hospital environment and the different academic classes offered at various institutions participating in BEACON.

The success of this program is based on the following:

- Application of engineering techniques to patient care and hospital-based research.
- Completion of diverse clinical rotations in different departments of the hospital, namely Hemodialysis, Respiratory Care, Radiology, Anesthesia, Operating Rooms.
- Interaction with hospital personnel, including administrators, nurses technicians, and medical staff.

² "World Development Report", The World Bank, 1993

The Clinical Engineering Program is structured in such a way that the first year clinical engineering interns dedicate their time to rigorous clinical rotations throughout the hospital and at the same time participate in various projects undertaken at their respective hospitals. Second year of this program is dedicated for a completion of a clinically and engineering oriented thesis project. Each intern is required to complete 25 hours working in the hospital doing various clinical rotations, working on highly complex engineering/clinical projects, gaining valuable knowledge to further build up his/her existing clinical as well as engineering experiences. Clinical Engineering Interns can successfully employ their acquired knowledge in their future academic and clinical/biomedical engineering careers.

Graduates from this program have been successful in entering:

- Clinical engineering departments of hospitals
- Medical instrumentation companies
- Medical schools
- Ph.D Programs



ACCE Board Highlights

Wednesday, February 16, 2000

Caroline Campbell, cac1@mhg.edu

PRESENT: Jennifer Ott, Bryanne Patail, Brian Porras, Caroline Campbell, Henry Montenegro, Bob Morris, Frank Painter, Jim Wear, J. Sam Miller, Kelly Galanopoulos, Joe Dyro, Binseng Wang

The minutes of the December 15, 1999 Board Meeting were approved.

President's Report (J Ott)

Secretariat proposal: A proposal for all items contained in the proposal has been received and is under consideration. A second

party has indicated interest, but a formal response to the proposal has not been provided by this party.

ACTION ITEM: *Jennifer will contact second party to solicit a proposal.*

ACTION ITEM: *Henry will review the tax status and the potential need to retain the services of a CPA.*

Policy Guidelines for Project Payments: Based on an increase in the number of projects with income and expenses, the Board recommended development of policy guidelines for project payments. As an example, the OHSU Foundation has been used to hold funding for ACEWs. The OHSU Foundation was chosen for this purpose in order to prevent the need to change ACCE's tax status and because its use offered an immediate solution to an urgent need. However, in his previous role as Treasurer, Bryanne Patail had concerns about the ease with which the Treasurer could track the transactions related to the ACEWs.

ACTION ITEM: *Bryanne Patail will draft a policy for review by the Board.*

ACTION ITEM: *Bob Morris to provide ACEW transaction documentation after each contract OHSU was involved with and an annual summary to be included with the annual treasurer's report.*

ACTION ITEM: *Bob Morris to provide the OHSU guidelines for how money is distributed.*

ACTION ITEM: *Jim Wear to work with Bob Morris, Henry Montenegro, and Frank Painter to discuss the possibility of creating an ACCE foundation.*

INFRATECH Contract: This contract for coordination of the INFRATECH Internet discussion group was approved at the December Board meeting and has subsequently been signed. ACCE will receive \$2,500 upon receipt of the signed document, \$5,000 on June 30th, and \$2,500 on December 1. Al Jakniunas has agreed to be the coordinator and as such will need ACCE to purchase a computer, Internet access, and to fund travel to the INFRATECH meeting to be held in conjunction with the World Congress. A budget of \$4,750 for these expenditures was approved.

ACTION ITEM: *Jennifer Ott to discuss with Sam Miller regarding involvement from the International Committee and the development of a policy and oversight for Al Jakniunas to follow as the coordinator.*

ACTION ITEM: *Frank Painter to draft letter for Jennifer Ott to sign and review with the International Committee and Al Jakniunas.*

ACTION ITEM: *Jennifer Ott to contact Al Jakniunas with final Board decision.*

WHO/ACEW Contract: Andrei Issakov of WHO has proposed to pay ACCE \$10,000 to develop an annotated curriculum outline for a 1 week and 2 week ACEW, and to prepare an outline and concept of developing an ACEW textbook with full lectures. Jim Wear and Joe Dyro have started work on the curriculum on a voluntary basis in order to meet WHO's draft deadline of March 31. Jim and Joe have requested an honorarium of \$500 each plus expenses for activities related to an ACEW textbook. ACCE's Executive Committee

ACCE News

reviewed the contract and would like the expenses capped at \$500. The Executive Committee also desires to modify General Condition 2 of the contract to state that ACCE reserves the right to use this material for its own educational purposes and that ACCE and WHO will not use the material competitively. The Board approved the contract with these stipulations.

ACTION ITEM: *Jennifer to amend number 2, sign contract and send.*

ACTION ITEM: *Jennifer to contact Joe and Jim regarding cap on expenses and what the Board approved.*

Nominations for FDA: The FDA is seeking nominations for participation in medical device panels and committees. Bob Morris, Tom Bauld, Binseng Wang, and William Hyman have expressed an interest in the past or during the last few weeks.

ACTION ITEM: *Jennifer Ott will draft a letter from ACCE nominating the people who have expressed an interest.*

First Vice President's Report (Bryanne Patail)

Michigan 2000: The survey response for Michigan 2000 has been poor and this has prompted a refocusing on BMET needs. This will be discussed by the local planning committee and AAMI.

A membership survey will be taken to determine the membership's needs, how well ACCE is fulfilling these needs, and future directions.

ACTION ITEM: *Bryanne will develop survey questions.*

Second Vice President's Report (Brian Porras)

ACCE Symposium: AAMI has agreed to commit a full day to the ACCE Symposium. VitalCom and, possibly, Datex-Ohmeda will sponsor.

AAMI Annual Meeting: AAMI recently distributed the Preliminary Program, which contained ACCE's logo only once. Increased exposure for ACCE was discussed with Kathy Warye.

ACTION ITEM: *Brian Porras to identify ACCE session chairs for Jennifer.*

Secretary's Report (Caroline Campbell)

The *What is ACCE?* Brochure and the international brochures will be available at or around the end of February.

There needs to be a comprehensive collection of all ACCE policies and procedures.

ACTION ITEM: *Caroline will send an e-mail request to appropriate members to forward existing policies and procedures.*

Treasurer's Report (Henry Montenegro)

P&L report: ACCE is about \$900 over budget so far this year. The Board will watch this carefully over the coming months.

Membership Committee's Report (Kelly Galanopoulos)

The Membership Committee has requested updated information from candidate and associate members to determine if they are eligible for upgrade to individual membership status. There has been no response to this inquiry.

Joe Dyro recommended that the Membership Committee expands its scope to include advertising for new members and to solicit renewals based on the information contained in the membership database.

ACTION ITEM: *The Membership Committee will review this request and respond to the Board.*

The International Committee has identified several individuals that were previously ACCE members that would like to have their membership reinstated through the dues sponsorship program. Historically, membership reinstatement has involved simply payment of dues. The Board requested that the Membership Committee develop guidelines and policies for reinstatement of membership.

ACTION ITEM: *Membership Committee to develop guidelines/policies for reinstatement.*

Two new membership applications were reviewed by the Committee:

- ❖ Levon Vatian is approved for associate membership.
- ❖ Cheryl Iden is approved for candidate membership.

Education Committee's Report (Jim Wear)

Teleconferences: A list of potential topics for teleconferences were reviewed and prioritized.

ACTION ITEM: *Jim to fine tune the topics and solicit speakers.*

International Committee's Report (Sam Miller)

Four candidates have been identified to receive membership through the dues sponsorship program.

CEC Committee's Report (Frank Painter)

An e-mail questionnaire concerning certification has been distributed to the membership and several thoughtful responses have been received. ASHE's President was surprised by AAMI's lack of action on the issue since AAMI told ASHE several months ago that there would be an RFP distributed. The Clinical Engineering Certification (CEC) Committee, comprised of Ray Zambuto, Tom Judd, George Johnston, and Ted Cohen, is hopeful that this is an indication that AAMI desires to negotiate with ACCE. The Committee is eager for ACCE to spearhead as long as a source for the significant start-up costs can be identified. The Committee is developing a business plan including a financial plan with a target completion deadline of April 15th.

Newsletter Report (Joe Dyro)

Jay Hall has agreed to accept the advertising manager responsibilities and Kathy Zaverton has accepted circulation responsibilities. A suggestion was also made to investigate electronic distribution to minimize postage expenses.

Health Tech (Binseng Wang)

Some problems have been experienced with speaker arrangements.

World Congress (Frank Painter)

The International Committee will review 40 papers that were submitted.

MEDICAL ADHESIVE TAPE SHOULD BE A CONTROLLED SUBSTANCE!

Eben Kermit,
ekermit@compuserve.com

Editor's Note: The following article is based upon Eben Kermit's defense of his iconoclastic hypothesis during the TECHNICAL ICONOCLAST ROUND TABLE at the 28th Annual AAMI meeting in Boston, Massachusetts, May 8-12, 1993.

Medical adhesive tape is omnipresent in a modern hospital setting. Its primary intended use is to adhere dressings to skin promoting the healing process for trauma or wounds. Unfortunately, many health care providers use tape in new and creative ways not intended by the tape manufacturers. The reasons for using medical tape are as varied as the applications. However, the widespread availability of adhesive tape certainly contributes to its use or abuse...just because it is at hand!

The purpose of my presentation is to declare medical adhesive tape dangerous and further to "license" or "educate" users of proper versus improper application. I further suggest that adhesive tape be available only to "authorized" personnel in the same manner as controlled pharmaceuticals.

Medical adhesive tape is used for one of three general categories.

- It may be used as a COMMUNICATION vehicle to

inform others.

- It may be used to MODIFY the environment,
- It may be used to REPAIR medical devices.

Although other forms of communication, other environmental constructs or other methods of repair may be available, tape is convenient to handle and dangerous.

My proposal

Documentation of proper use of adhesive tape, while judged by many as cumbersome or unreasonable, is justified by the reduction of patient or staff injuries. Sign out for the tape you need! Clearly state the intended purpose! Fill out the forms in triplicate! Sign and date! Keep in mind, the FDA and JCAHO may audit these in future!

Examples

I'm sure you have all observed handwritten instructions for operating a monitor, IV pump, or cardiac output computer that was written on a scrap of paper or directly on a piece of tape and attached to the device. This primitive form of written communication is fraught with peril. The notes come off, are illegible, or cover an indicator or control.

The shelf that is too small for the latest device, lamp or CRT must be located somewhere; right? So the creative clinical practitioner must improvise. Devices are often taped to bed rails, IV poles or TV support brackets. Heater vents, lampshades, patient cables are often held in place (or out of the way) by tape. Mechanical hazards, e.g. CRT monitors on overhead suspension arms have been padded with foam held in place by tape.

In the BME repair facility, how

often do devices appear with wheels taped on, hinges taped over or plastic covers patched together with tape? Patients and staff are at risk because repairs are performed improperly because medical adhesive tape is near by.

The Solution

There are better methods for communicating written information. Use of sticky yellow notes is preferred for labels because they leave no permanent sticky gluey residue. A piece of transparent office tape will keep the little yellow pieces of paper from falling off until permanent labeling can be prepared.

Modifications of the environment are best performed by qualified BMETs and facilities staff. These are highly skilled professionals who have the knowledge and tools to do the job correctly. Do not attempt this yourself!

Nothing beats duct tape or baling wire for temporary repairs. Do you remember the astronauts that repaired the broken fender on the lunar rover? Paper clips, rubber bands coat hangers and Velcro™ are also useful for repairs. However, a better choice for repairs, in order of preference, involves spare parts or assemblies from the original manufacturer, direct substitution of equivalent parts, fabricated parts and last of all, duct tape. DO NOT use medical adhesive tape!

Conclusion

Medical adhesive tape is dangerous when used improperly. Tape should be kept in locked, but accessible, storage and made available on an "as-needed" basis. Medical professionals should "sign-out" for all tape used. Before attempting to COMMUNICATE,

ACCE News

MODIFY THE ENVIRONMENT or effect REPAIRS, medical adhesive tape should be the last idea, not the first.

Seven Years Later

I have not changed my opinion regarding the use of "White Tape". In fact my convictions remain as strong or stronger than they did when I first presented the concept that white tape should be made a controlled substance. I have gone

on to suggest that all forms of tape (masking, magic, recording, strapping, even the most highly prized "DUCT TAPE" should be restricted from general use to prevent accidents and injury. I have begun to think that adhesives are next. White glue, contact cement, rubber cement, epoxy, and especially "SUPER GLUE" should be next on the list for extinction.

I must say that I have met a number of talented BMETs that given a full tool box, a daub of chewing gum, some twine, a paper

clip, a roll of electrical tape (also considered for black listing), a box of pop rivets, 10 lbs. of rosin core solder, and a half-spool of baling wire have informed me that they are prepared to parachute into a third world country and repair any medical device set before them. To them I reply, *"You are woefully mistaken, for it has already been made as-good-as-new with a piece of tape by a resourceful nurse, physician, orderly, or a P.A."*

Opportunities: ACEW Faculty Wanted

Have you dreamed of visiting exotic lands, experiencing new cultures, and meeting fascinating people? Have you delayed fulfilling this dream because you can't figure out how to finance it? Let ACCE come to your rescue with an opportunity to participate in an Advanced Clinical Engineering Workshop (ACEW)!

ACCE is seeking volunteers to teach and/or coordinate ACEWs in Lithuania, Nepal, Panama, Colombia, India, and Russia. The coordinator serves as the point person for organizing the workshop and for communicating between the host country, the faculty, and ACCE. The faculty is responsible for preparing, presenting, and leading the discussion about particular topics of interest to clinical engineers. By participating, you will get:

- Your expenses paid, including travel, lodging, and food
- To experience the culture first hand
- The satisfaction of assisting a developing country to advance its clinical engineering capabilities.

All interested members should contact Bob Morris at

e-mail: morris@ohsu.edu
telephone/fax: 503-775-8457



February 29, 2000

Dear ACCE Member:

On behalf of the board of the American College of Clinical Engineering (ACCE), I would like to extend a personal invitation for you to attend the Third ACCE Symposium. The Symposium will be held from 8:00 am till 4:30pm on Saturday, June 5, 2000, at San Jose, CA.

This year's topic, *Frequency Allocation Issues in Medical Telemetry*, is a timely and rigorous treatment of the relevant issues surrounding the coming regulatory changes that promise to drastically affect the landscape of medical telemetry. Representatives from government, industry, and the user community will participate in an interactive discussion of the issues. Particular attention will be paid to the possible ramifications the proposed changes will have for health care providers and medical device manufacturers. Audience participation will be encouraged.

Of course, the Third ACCE Symposium is only one of several events that help to kick off the Association for the Advancement of Medical Instrumentation (AAMI) 2000 Conference and Exposition. The ACCE encourages its membership to enjoy the tremendous educational and networking opportunities that the AAMI annual meeting brings (For ACCE members who are not currently AAMI members, AAMI is offering the member rate for conference registration). The program, which includes a dynamic keynote presentation and several exciting new sessions, will serve to expand the horizons of all that attend.

Registration for the Symposium will be handled through AAMI. To register, contact AAMI at 703.525-4890, or get more information on-line at www.aami.org. For more information on the ACCE Symposium, contact me at 704.733.5056.

I look forward to seeing you in San Jose!!!

Brian A. Porras, MSBME
ACCE 2nd Vice President & Symposium Chairman

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- 1 million microphones: 1 megaphone
- 1 million bicycles: 2 megacycles
- 365.25 days: 1 unicycle
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- 1 kilogram of falling figs: 1 Fig Newton

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- HealthTech 2000, April 30-May 3, 2000, Dallas, TX. (401) 766-4142; www.expotracc.com.
- NCHES 4th Annual Conference, National Capital Health Care Engineering, Washington, DC, <<http://www.nches.org>>
- DITEC 2K - Diagnostic Imaging Technology Education Conference, May 24-26, 2000, Cleveland, OH. (440) 519-1555, <http://www.ditecnet.com>.
- Third ACCE Symposium, San Jose, CA. June 3, 2000. Contact Brian Porras at (704) 733-5056, brian_porras@premierinc.com.
- AAMI 2000 Conference & Expo, June 3-7, San Jose, CA. 800-332-2264, ext. 233; education@aami.org.
- ACCE Annual General Meeting, June 6, 2000, San Jose, CA. (314) 577-8018.
- Medical Design & Manufacturing (MD&M) East 2000, June 6-8, 2000, NY, NY, (310) 996-9447, <gretchen.hawley@cancom.com>.
- 9th Annual National Expert Witness and Litigation Seminar, June 15-16, 2000, SEAK, Inc. Hyannis, MA, (508) 457-1111.
- ACEW, Advanced Clinical Engineering Workshop, July 21-23, 2000, Chicago, IL. <http://www.wc2000.org>.
- World Congress on Medical Physics and Biomedical Engineering, July 23-28, 2000, Chicago, IL, <http://www.wc2000.org>.
- Advanced Clinical Engineering Workshop, September 15-22, 2000, Vilnius, Lithuania, Al Jakniunas (202) 865-6312.
- IEEE-EMBS Asia-Pacific Conference on Biomedical Engineering, Sept. 26-28, 2000, Hangzhou, China. www.ee.cuhk.edu.hk/~APBME.
- EPSM 2000 - Annual Medical Physics and Biomedical Engineering Conference, Nov. 5-9, 2000, Newcastle, Australia. <http://www.newcastle.edu.au/department/ph/epsm2000.html>.
- II Congreso Latinoamericano de Ingeniería Biomédica, Mayo 23-27, 2001, La Habana, Cuba, www.hab2001.sld.cu.
- 10th International Conference on Biomedical Engineering, Dec. 6-9, 2000, Singapore. <http://www.nus.edu.sg/DB/icbme/>.
- 23rd Annual International Conf. of the IEEE Engineering in Medicine and Biology Society, Oct. 25-28, 2001, Istanbul, Turkey.

Third ACCE Symposium

Frequency Allocation Issues in Medical Telemetry

On Saturday, June 3, 2000, a panel of experts from government, the medical device industry, and the hospital community will lead a discussion of the upcoming changes to the landscape of medical telemetry. New provisions are being made to provide for some protection of medical telemetry systems from unwanted interference. However, these changes promise to have a major impact on device manufacturers and the hospital community. This program will address a variety of medical telemetry issues, with ample opportunity for audience participation for questions and answers, brainstorming, and alternate points of view. The formal program will run from 8 AM to 4 PM.

- Brian Porras – Premier, Inc. (Host and Moderator)
- Caroline Campbell – Washington Hospital Center (user perspective)
- Steven Juett – Baylor University Medical Center (user perspective)
- David Paperman – Texas Children’s Hospital (user perspective)
- Hugh Van Tuyl – Federal Communications Commission (regulatory perspective)
- Don Witters – Food and Drug Administration (regulatory perspective)
- Mary Beth Savary Taylor or Curtis Rooney – American Hospital Association (AHA Task Force perspective)
- Stan Wiley – Spacelabs Medical (vendor perspective)
- Steve Hannah – VitalCom (vendor perspective)
- Mike Dempsey – Agilent Technologies (vendor perspective)
- James Brinsfield – GE Marquette (vendor perspective)

This symposium is being held as part of the AAMI 2000 Annual Meeting
San Jose McEnery Convention Center

When registering for AAMI, indicate that you wish to attend the ACCE Symposium
on Saturday, June 3, 2000

For information contact AAMI, 703-525-4890 or Brian Porras, 704-733-5056,
brian_porras@premierinc.com