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Letter From the President

Brandon Beaudry

THE MOMENTUM CONTINUES

Response from the internet has been tremendous. Membership continues to grow at a steady pace and we are more than half way to our membership goal of 1997 and 1998. Why a membership goal? A membership goal gives the ACES executive a benchmark from which to measure performance. How do we plan to reach our membership goal by 1998? By continuing to build on beneficial programs for our members. So the real question is, what are the programs that we are building on? This is the question we hope to answer in the following pages.

As you browse through the following articles, keep in mind that none of the programs listed can run without your support. A lack of support now will directly reflect on the accessibility of these programs in the future. Your feedback is critical. Traditionally surveys receive only a 20% response. For the following programs to succeed a response of more than 40% will be required. We have chosen to offer an incentive in our survey to ensure a greater response. The details are listed in the following pages.

ACES Study Group Update

In our previous newsletter we indicated that an opportunity to join a certification study group would be offered at our April seminar. The Edmonton study group is now into its second month and we are progressing well. The group of eight have set their sights on the 1998 CMBES conference. A broad range of experience is represented and we are finding the group to be an excellent motivational tool. Our first priority is to establish a solid time line.

It is the intention of the group that BMETs who pursue certification in the future will benefit from the experiences of the group. To accomplish this we are building a library of resources that will be made available to anyone intending to complete the process. Sponsorship for the library is greatly needed. Anyone who is willing to offer their resources toward the purchase of books should contact me through email at bbeaudry@cha.ab.ca.

For more information on the study group, please feel free to contact me through the above email address. We have also included an article outlining details of the certification process for those of you who were unable to attend the April seminar.

Sam Itani of the Foothills Hospital is also organizing a Calgary study group. Please feel free to contact Sam at (403) 670-1985. Don Buyers, ASET Registrar will be on hand at the June 18th dinner meeting to answer questions about ASET membership and CBET certification.



Letter From The Editor

Robert Lukacs

Welcome to the second issue of the ACES newsletter for 1997. Included in this issue are articles on certification, the ACES homepage, CSA standards, Capital Health Authority update and an ACES course survey. Thank you for those who contributed these articles.

It is very important that you respond to the ACES course survey, it will ensure the ACES executive can successfully organize the upcoming November ACES conference in Calgary. The results will also be used for the organization of the CMBES conference taking place in Edmonton at the end of June, 98. All survey's that are submitted are eligible to win two sets of Stage West Dinner Theatre tickets!

I hope everybody has a great summer and I hope to see you at the dinner meetings taking place on June 18, 1997 in Calgary and June 19, 1997 in Edmonton.

Is there something you like or dislike about the Newsletter? Is there some information or specific topic you would like to see in the Newsletter? Or do you have a great idea and would like to contribute an article to the Newsletter? I would like to hear from you!

I can be reached at:

Robert Lukacs
Biomedical Engineering
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4713 48th Ave
St. Paul, Alberta
T0A 3A3

E-mail: rlukacs@telusplanet.net

CHA Regional Update

Bill Rutledge

Organizationally, Capital Health has reverted somewhat to a more site specific structure, with the naming of two Chief Operating Officers for the Royal Alexandra Hospital and the University of Alberta Hospital. Clinical Engineering, however, is trying to keep a regional focus. We have been active on a number of fronts in the past few months in the Edmonton region.

Ray Cislo has prepared a regional directive on cellular telephone and two-way radio usage in health care facilities. The proposed directive has been reviewed by a great number of stakeholders including the Emergency Response Department, the police and Telus. We expect approval of the final draft in the next few weeks.

The infusion pump pool developed by Vince Waldon and Darrell Degenhardt at UAH site has been highly successful in improving pump utilization. This team is now led by Mike Farrah and Jerry Froehlich and is being looked at as a model for addressing some other, broader equipment management issues in the hospital.

Proposals are being requested and evaluated on some significant new technologies. BMETs are providing input into clinical information systems for PICU at UAH, ICU headwall systems in ICUs at UAH, ECG Data management and holter systems region wide, and EEG monitoring equipment at RAH and UAH. We are also initiating a review of infusion pump technologies in place at all sites.

Personnel wise, we are finally recruiting a clinical engineer to replace Vince Waldon who left us a number of months ago. We will introduce the successful candidate in the next newsletter. Warren Ngo and Todd Shandro have each been hired on temporary positions at the UAH for the next few months, while Duncan Cook is seconded to the Northern Alberta Renal Program as a project coordinator.



Myths and Misconceptions of Certification

Brandon Beaudry

In 1996, the ACES executive chose to obtain a research report on certification with the intention of clarifying some of the myths and misconceptions of the certification process. We have presented the results of the report to our members at two consecutive meetings. To ensure that all members receive this information we will summarize the report here.

The **International Certification Commission** is the organization responsible for certifying Biomedical Technologist. This organization is recognized as a certifying body in South Africa, Mexico, The United States, and Canada.

In Canada, the **Canadian Medical and Biological Engineering Society** is a non profit organization which has been chosen as the Secretariat for the Canadian CBET exam. Because the CMBES acts only as the Secretariat for the ICC, membership in CMBES is not a requirement of certification although BMETs stand to benefit from membership.

The cost of the ICC exam is \$175.00. Only candidates who meet the 5 year clinical experience requirement should apply as a portion of the cost of the exam is non refundable. The ICC exam is however a no fail exam. If a candidate fails any one of the six sections of the exam, he is given the opportunity to upgrade his knowledge of that particular area and write a supplemental exam. The cost of the supplemental exam is \$60.00 per section. This exam covers a specific topic in more detail thereby requiring extended knowledge of that subject.

There are two types of exams available in Canada; a technician's version and a technologist's version. Both exams require membership and prior recognition from the provincial certifying body ASET.

ASET (**Alberta Society of Engineering Technologists**) membership comes at a cost of \$120.00 per year and is required to maintain certification. An ethics exam is now a prerequisite for certification at the provincial level as is two years technical experience and three references, preferably with a professional technical designation. The exam registration cost is \$25.00 which includes \$15.00 worth of reference material.

Individuals who do not possess a Biomedical diploma are required to demonstrate education in equivalent areas of training before they can be recognized at the Biomedical level. The specific requirements are currently under review. Presently cases are handled on an individual basis.

ASET and CMBES are the only organizations currently involved in the process of certifying Alberta Biomed. AAMI, another familiar organization, is an American clinical and biomedical organization, which administers the American version of the ICC exam. CBET certification by the ICC is recognized in all of the associated countries and no duplicate certification is required. BMETs wishing to pursue a position in one of the associated countries should at most be required to demonstrate a knowledge of local safety standards.

A number of surveys were conducted during the research process of the report. Results of the surveys indicated that 81% of respondents agree that certification is desirable but should not be mandatory. Harmonization and periodic assessment were also high on the priority list. A majority of respondents would like to see the creation of sub-disciplines of recognition especially for Laboratory or Diagnostic Imaging equipment.

It was clear, however, that most people saw the cost of certification as exorbitant and a need for direct financial benefit was expressed. The idea of the employer paying for certification out right was rejected in most cases.

From these results, the ACES executive chose to take an active role in the certification process by becoming a resource to individuals who wish to complete the process. A majority of the executive chose to commit to completing the process personally in order to strengthen the level of experience within the ACES organization. It is our hope that by partaking in the certification process we will be able to improve the process for future participants as well as to enhance the field of Biomedical Electronics.

If you have further questions on the certification process or the certification report, please feel free to contact The ACES President at bbeaudry@cha.ab.ca

What in the World is:



ALARIS™

Send your answers to ACES via email:
aces@cha.ab.ca

Correct responses will be entered into a draw for a
Fluke Digital Multimeter



POP QUIZ

EXAMplifications

The certification process is about reviewing basic knowledge, excelling in ones profession, and challenging yourself to accomplish more. To build an effective study group and reference library we are on the look out for resources that provide a better understanding of our field. One such resource is the EXAMplifications published in the journal **Biomedical Instrumentation and Technology**. If you are interested in a quick challenge, here are a few examples of exam questions published within these articles.

1. *Question:* An Electrosurgical unit typically has a primary operating frequency of about:
A . 10 kHz
B. 100 kHz
C. 1 MHz
D. 10 MHz

2. *Question:* The major functions of the kidney include all of the following except:
A. acts as a filter to remove metabolic waste from plasma.
B. filters lymphatic fluids and removes unnecessary proteins and fats.
C. controls the concentration of substances in the plasma.
D regulates blood volume.

3. *Question:* The nephron performs all of the following functions for the kidney except:
A. collects the urine produced by the kidney for passage into the bladder
B diverts a portion of the arterial blood for the filtration process.
C. secretes unwanted substances from the interstitial spaces surrounding the nephron into the tubules.
D. allows reabsorption of substances the body must retain.

4. *Question:* An MRI system uses magnetic field gradients to:
A. establish coordinate systems along the three major orthogonal planes.
B. excite hydrogen protons to higher energy states.
C. fine-tune the strength of the main magnetic field.
D. measure the relaxation time constant of excited hydrogen protons

5. *Question:* Which of the following is not correct?
A. MRI systems can produce images that show anatomic structure and physiologic function.
B. Liquid helium is used in MRI systems to reduce the resistivity of the magnetic coil.
C. MRI systems are generally better than CT systems at imaging the nervous system.
D. The ionizing radiation created by MRI systems is usually less than one-tenth the level created by CT systems.

6. *Question:* The CNS refers to:
A. all the nerves of the body
B. only nerves that conduct signals to the brain.
C. the brain and the spinal cord
D. the cerebrum and the cerebellum

7. *Question:* What is normal intercranial pressure?
A. More than 20 mmHg
B. Approximately 10 mmHg
C. Approximately 15 mmHg
D. Less than 5 mmHg

8. *Question:* The ETco₂ value most closely approximates the CO₂ concentrations found in:
A the pharynx
B. the trachea
C. the bronchi
D. the alveoli

Answers to Pop Quizzes can be found on the following page. These questions were taken from numerous articles appearing between 1989 and 1997




Innovative Medical Products & Services
17811-116 Ave
Edmonton, Alberta
T5S 2J2
TEL: (403) 944-2909



CSA PROJECTS IN PROGRESS

Prepared by *Ray Cislo, Clinical Engineering Services
Capital Health*

The following is a list of standards-writing projects currently underway within CSA's Health Care Technology Program. Copies of draft standards, requests to participate in a specific project, or information pertaining to these projects is available by contacting one of the CSA Project Managers listed below.

LF	Larry Futers (416) 747-2272 futersl@csa.ca	JK	Jeffrey Kraegel (416) 747-2249 kraegelj@csa.ca	AW	Andre Wisaksana (416) 747-4242 wisaksaa@csa.ca
LF	Z76.1				Reclosable Child-Resistant Packages
LF	Z168.5.5				Particular Requirements for Emergency Transport Ventilators
JK	Z168.8.2				Anaesthetic Gas Scavenging System Piping
LF	Z168.9				Breathing Systems for Use in Anaesthesia
JK	Z262.23A				Radiation Sterilization
AW	Z267.1				Laser Resistant ET Tubes
AW	Z267.2				Laser Resistant Eyewear
AW	Z291				Compendium of Cardiovascular Standards
AW	Z292				Compendium of Biocompatibility Standards
AW	Z301.1				Compendium of Wheelchair Standards {6 Stds }
JK	Z305.1				Non-Flammable Medical Gas Piping Systems
JK	Z305.2				Low Pressure Connecting Assemblies for Medical Gas Systems
JK	Z305.3				Pressure Regulators, Gauges and Flow Metering Devices for Medical Gases
JK	Z305.5				Medical Gas Terminal Units
JK	Z305.7				O2 Compatibility
JK	Z305.8				Medical Supply Units
JK	Z314				Chemical Indicators
JK	Z314.1				Ethylene Oxide Standards
JK	Z314.2				Biological Indicators
JK	Z314.8				Reprocessing of Reusable Medical and Surgical Supplies
JK	Z314.12				Performance Requirements of Test Packs for Use in Hospitals
JK	Z316.7				Portable Analyzers
AW	Z317.2				Special Requirements for HVAC
AW	Z317.10				Handling of Waste Materials in Health Care Facilities
AW	Z323.8				Patient Lifting Devices
LF/JK	Z327				User-Applied Drug Labels in Anaesthesia & Critical Care
AW	Z364.4				IV Infusion Pumps
LF	Z11196				Anaesthetic Agent Monitors
JK	Z13485				Quality Management in Medical Practice



Newsletter Contributors

Thank You For Contributing To This Issue of the ACES Newsletter

Brandon Beaudry	Rudy Zeiderhoff
Ray Cislo, P.Eng, Bsc.	Ron Tarnowski
Bill Rutledge	Kevin Gibson

Newsletter Advertising

Robert Lukacs

Are you interested in advertising your company and services or do you have items you would like to sell? Then placing an advertisement with the ACES newsletter is an excellent way to reach the Alberta clinical engineering community. In addition, all newsletters are posted to the World Wide Web. Your ad will, therefore, also be available to the international clinical community.

Advertising Rates

One to two lines	\$50.00
5.0cm x 4.75cm space Half Business Card	\$75.00
5.0cm x 9.0cm space Business Card	\$100.00
10.0cm x 9.0cm space	\$150.00

If you would like to advertise on the ACES newsletter or have any questions I can be reached at:

Robert Lukacs
Biomedical Engineering
St. Therese Health Centre
4713 48th Ave
St.. Paul, Alberta
T0A 3A3
Phone: 403-645-3331 ext.252
E-mail: rlukacs@telusplanet.net

Popularity for the ACES Homepage Continues to Grow

Don't forget to check out the ACES Home Page at

<http://skynet.uah.ualberta.ca/~aces>

The Internet continues to be a popular means of communication for BMETs. More and more membership applications are being received by our on-line form based registration service.

Be sure to fill out the Clinical and Biomedical Salary Survey. We are receiving input from all areas of the country The **Canadian Medical and Biological Engineering Society's** homepage will be linked to the ACES homepage for up to date information about the 1998 National Conference to be held in Edmonton next June. As we approach the dates for **OUR Annual Provincial Conference** to be held in Calgary this year, be sure to keep an eye out on the homepage for course descriptions and registration opportunities.

Finally in addition to our regular Second Source Parts List service and Local Area Internet provider descriptions, you can get detailed information about the upcoming **Dinner Seminars hosted by Conmed Castro** in Edmonton and Calgary **June 18 & 19th** consecutively.

Keeping Our Members Informed

Check the back page of your newsletter for a map of the present **Healthcare Regions** across Alberta. Please feel free to remove this sheet for your reference library.

ACES is dedicated to keeping our members informed and up to date. If you have other topics that you would like to see appear in the ACES Newsletter please feel free to contact any one of the ACES Executive.

For a full profile of the Executive members including Email addresses, please check the ACES Web sight

Answers to Pop Quiz

- (C)
- (B)
- (A)
- (A)
- (D)
- (C)
- (B)
- (D)



Membership Application

To enjoy the benefits of ACES and to continue receiving the ACES newsletter and meeting notices, become a member now! Enclose a \$10.00 cheque and return this application with label attached or complete the following form to update your information.

Return to:

**The Alberta Clinical Engineering Society
c/o The University of Alberta Hospitals
Clinical Engineering Room 0D1.00
8440-112 Street
Edmonton, Alberta
T6G 2B7
ATTENTION: Brandon Beaudry**

*Are you reading this but are not on the ACES mailing list, No Problem!
Fill out the requested information and send to the above address.*

ACES THANKS YOU FOR YOUR PARTICIPATION

*** Members who have not yet received Membership Cards or Pins
Please contact Brandon Beaudry via pager @ 445-6330 or via E-mail at bbeaudry@cha.ab.ca*

Business Information

Company: _____
Position (Title): _____
Department: _____
Address: _____
City: _____ Province: _____
Postal Code: _____
Work Ph: (____) _____ Ext: _____
Fax: (____) _____
E-mail: _____

Personal Information

First Name: _____
Last Name: _____
Home Address: _____
City: _____ Province: _____
Postal Code: _____ Ph: (____) _____
E-mail: _____

NOTE: *If your personal information provided on the above label is incorrect please feel free to use this form letter to update our records.*



Alberta Clinical Engineering Society June 1997

Dinner Meeting

Calgary Evening Agenda
Wednesday, June 18th 1997, 5:30PM
Location: The Village Park Inn

Time	Activity
5:30- 6:00	Registration (The Bar will be Open during registration so come early)
6:00 - 6:05	Opening Remarks
6:05 - 7:00	Dinner Provided by Conmed Castro and Ingram and Bell Enjoy your favorite pizza during the technical presentation.
6:15 - 7:00	Technical Presentation ConMed s Line of Electrosurgical Equipment Lecturer: Rudy Zeiderhoff
7:00 - 7:50	The Alberta Society of Engineering Technologists presentation by Don Buyers and Jay Fisher They will discuss ASET's role in the CBET certification process.
7:50 - 8:00	Final Remarks
8:00 - 8:30	Feel free to stay for discussions following the presentations.

*Due to the expense of the above the program **pre-registration is required** to prevent cancellation.
 Pre-registration for Calgary must **ONLY** be **Faxed or Emailed** to Sam Itani at the foothills
 hospital*

Fax: (403) 670-2070. Send E-mail responses to dave.edmonds@crha-health.ab.ca.

Registration must be received by Tuesday June 17th.

Registration

I (Name) _____ will be attending the ACES Dinner Meeting in
 Calgary.

Company or Hospital _____

Choice of pizza toppings: _____ Drink _____

Preference: _____

Check the ACES homepage for any additional details: <http://skynet.uah.ualberta.ca/~aces>



Dinner Meeting

Edmonton Evening Agenda
Thursday, June 19, 1997, 5:30 PM
Location: The Convention Inn South

Time	Activity
5:30- 6:00	Registration (The Bar will be Open during registration so come early)
6:00 - 6:05	Opening Remarks
6:05 - 7:00	Dinner <i>Provided by Conmed Castro and Ingram and Bell</i> Enjoy your favorite pizza during the technical presentation.
6:15 - 7:00	Technical Presentation ConMed s Line of Electrosurgical Equipment Lecturer: Rudy Zeiderhoff
7:00 - 7:45	Presentation by Dr. Brian Andrews Rehab medicine specialist from the Capital Health Region
7:45 - 8:15	The 1992 Barcelona Olympics a motivating presentation by Roy Sharplin on his experiences in competing at the Barcelona Olympics
8:15 - 9:00	Feel free to stay for discussions following the presentations.

*Due to the expense of the above the program **pre-registration is required** to prevent cancellation.*
*Pre-registration for Edmonton must ONLY be **Faxed or Emailed** to Brandon Beaudry at the University of Alberta Hospital Fax: (403) 492-7082. Send E-mail responses to aces@cha.ab.ca.*
Registration must be received by Wednesday June 18th.

Registration

I (Name) _____ will be attending the ACES Dinner Meeting in
 Edmonton.
 Company or Hospital _____
 Choice of pizza toppings: _____ Drink _____
 Preference: _____

Check the ACES homepage for any additional details: <http://skynet.uah.ualberta.ca/~aces>

Stop ! If you are not considering filling out the following Survey **YOU MUST READ THIS**

IF THEIR IS ANY DOUBT OF THE IMPORTANCE OF THIS DOCUMENT

Please consider: **Your Future Depends on Your Answers to the Following Questions.**

Only through valid responses to the following questions can the executive of ACES successfully organize **YOUR** November Provincial conference in Calgary. Your responses will also be referred to during the organization of the National CMBES conference in Edmonton at the end of June, 1998, and will directly dictate the value of that conference to the Alberta Clinical and Biomedical Community.

All completed Surveys will be eligible for the draw for
2 sets of Stage West Dinner Theater tickets
(To be used in Calgary and Edmonton. Membership will be required.)

Registration
 Please Mail completed Surveys to Brandon Beaudry at the University of Alberta Hospital, Clinical Engineering Department, 8440-112 St., Edmonton, Alberta, T6G 2B7. Draw will take place July 30th, 1997. Surveys must be received before this date to be eligible.
 NAME _____
 Phone Number _____, Email Address _____
 Company or Hospital _____

ACES Course Survey

Please rate your level of interest in the following courses or subject matter on a scale of 1 to 3:
 1 = substantial interest, 2 = some interest, 3 = not interested

<u>Courses:</u>	<u>Rating:</u>
1. Anatomy and Physiology (Cardiac and Respiratory Basics) class lecture session provided by Hewlett Packard 2. Plastics and Polymers (Recognition and Repair) a hands on workshop provided by Jack Warwick Foster a Plastics Engineer from the University of Alberta in conjunction with Ken Glinz a Plastics Engineer from British Columbia. 3. Networking Fundamentals a credit course in LAN Basics from the Micro Computer Institute, NAIT. 14 hours in duration to be provided over a 2 or 3 day period. 4. Preparing for the CBET Certification exam. Tips and Tricks to studying for the ICC exam. Be prepared to write by the 1998 CMBES conference in Edmonton. Instruction provided by the Director of Biomedical Engineering Technology at the Fanshaw college of Ontario. 8 hours of instruction on Saturday. 6. Imaging Ultrasound , the Clinical Experience. Understanding the basics of ultrasound images and diagnosis. A hands on workshop with instruction provided by the Clinical Ultrasound Specialists for Hewlett Packard. 7. Fluoroscopy, the Clinical Experience. Understanding the basics of Diagnostic Fluoroscopy. 8. Ventilator Basics a hands on workshop reviewing the basics of ventilator operation and repair technics. Participants will review the design of 7 different models of ventilator and compare similarities and differences.	

Please rate your level of interest in the following courses or subject matter on a scale of 1 to 3:
 1 = substantial interest, 2 = some interest, 3 = not interested

<u>General Topic</u>	<u>Specific Topics</u> <i>** Please specify or circle your choice</i>	<u>Rating</u> 1,2,3
Clinical Application		
Respiratory Therapy	Equipment, Terminology, Application, Ventilation Ventilator Basics or Specifics	
Endoscopic Surgery	Clinical Education, Equipment Applications,	
Cardiovascular Therapy	ECG Analysis, Cardiac Output or ECG Analysis	
General Anatomy		
General Physiology		
Medical Terminology		
Electronics		
Electronic Engineering	Computer simulator software, design and drafting	
RF Generation	Frequency Use, Safety Analysis, Design	
Optics		
Digital Signal Processing		
Troubleshooting	Planning, New Developments, Tools, or Test Equipment	
Video Systems	Televisions, VCRs , monitors, cameras, telescopes	
Specific Technical Specialties		
Digital Signal Processing		
Electronics Fundamentals	Basic Review, Analyzing Schematics, New Advances	
Computers		
Clinical Networking Systems	Design Analysis, Installation, Support	
PC Configuration	Troubleshooting, repair, configuration	
Specific Software Applications	Word, Access, Windows NT, UNIX	
Computer networks	Hardwiring Basics, Software application,	
The Internet	basic, advanced, JAVA, HTML or clinical application	
TCP/IP Network Protocol		

Professional Development		
Effective Communication	Presentations or Effective Writing	
Certification training	CBET exam preparation	
Service Contract Management	Purchase, Negotiation, Elimination	
Maintenance Management		
Equipment Planning	Procurement	
Equipment Evaluation	Technology Assessment, Selection	
Device Specific Technical Education		
Device	Specific Make or Model (Please Specify)	Rating
Pulse Oximeters		
Gas Monitors		
Defibrillators		
Patient Monitors		
Infusion Devices		
Ventilators		
Anesthesia Equipment		
Electrosurgical Equipment		
Physiotherapy Equipment		
Lasers		
Xray		
Fluoroscopy		
Nuclear Magnetic Resonance Imaging (MRI)		
Laboratory		

***** Please provide any additional comments and suggestions or feel free to contact Brandon Beaudry, ACES President via E-mail: bbeaudry@cha.ab.ca or by pager 445-6330.**

Comments:
