

INTERFACE

SOCIETY FOR TECHNOLOGY IN ANESTHESIA

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A P R I L 1 9 9 3 • V O L U M E 4 • N O . 2



Membership: Pressing Agenda for STA

■ ***"Attracting new members and increasing the diversity of our membership is essential to the long-term stability of our society."***

Now that the excitement of another wonderfully successful STA Annual Meeting is behind us, it's time to address an issue which is essential to the long-term success of STA—membership. The membership committee consists of: Julian M. Goldman, MD, Denver, CO; Sandy Eames, BSc, MBA, Paramus, NJ; James Philip, MSEE, MD, Boston, MA; Jennifer E. Souders, MD, Seattle, WA; Richard Watt, MSEE, Tucson, AZ; John Zelcer, MB, FFARACS, Melbourne, Australia.

STA currently has 310 members: 252 USA; 58 International; 13 are anesthesia residents. In 1991 our total membership was 504 (USA 408; international 96). Attracting new members and increasing the diversity of our membership are essential to reaching the critical number of members which are required for the long-term stability of our Society.

Several steps have already been taken to increase the membership. A new dues structure has been established,

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President's Message

Jerry M. Calkins, PhD, MD

It is a pleasure and an honor to be elected as President of the Society for Technology in Anesthesia for 1993. I appreciate your confidence in me and look forward to an exciting year. The kick-off for this exciting year was our highly successful annual meeting which explored *Human Performance and Anesthesia Technology*. The meeting was held in New Orleans on February 17–19 amidst the annual Mardi Gras celebration. As many of you are aware, this meeting was also co-sponsored by the Anesthesia Patient Safety Foundation. The meeting organizers, Drs. Grogono and Weinger, are to be congratulated for the success of the meeting.

Prior to the start of the annual meeting, a retreat was held by the Board of Directors and the Committee Chairmen to begin to assess the areas of STA's successes and nonsuccesses. It was the conclusion of the participants that STA has achieved much, but that many challenges lie ahead.

The STA mission as stated in the bylaws was reviewed and renewed by the retreat participants. Everyone agreed that our purpose, to improve the quality of patient care by improving technology and its application, should remain unchanged. STA's potential to fulfill

this mission is purely a function of the imagination and energy of the membership. We cannot be complacent about our current successes, but must continue to reach for new heights to accomplish our vision.

To that end, I would like to encourage every member to become active in some aspect of the Society. For example, there are 14

committees with a wide range of activities including: Bylaws, Fiscal Management, Membership, Archives/Historian, Annual Meeting, Education, Nominating, Newsletter, Development, Liaison, Anesthetic Database, Promotion, Special Interest Groups, and Equipment Testing, Standards and Specifications. If you are interested in participating, feel free to contact either our Executive Director, Kim Roberts, or myself.

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Mardi Gras parade outside meeting hotel.

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STA '93:

Improving the Provider

The moderator, Dr. Gaba, Associate Professor of Anesthesia, Stanford University, opened the panel with a short presentation concerning the importance of the provider in the chain of safe patient care. He suggested that despite all the technology in anesthesia, and despite current interest in systems issues in patient safety, improving medical care in anesthesia must insure that the **anesthetist** can perform optimally. Addressing the provider encompasses issues of selecting appropriate people for training in anesthesia; providing a thorough educational experience in the training period; and providing the means to maintain skills throughout a long career. Each of these issues was covered in this panel.

Dr. Rhoton, Case Western Reserve School of Medicine, discussed her extensive research into elements which make up a successful anesthesia resident. One set of studies involved collecting and analyzing thousands of written comments made by faculty in conducting resident evaluations. These comments were categorized into 15 basic attributers, split between "cognitive" ones (e.g. "knowledge", "technical skill") and "non-cognitive" ones (e.g. "confidence", "conscientiousness"). A neural network was developed based on these attributes taken from anesthesia resident evaluations. Studies utilizing this network indicate that not only can the network predict the success of anesthesia residents, but it functions equally well to predict resident success when applied to orthopedic residents as well. The basic elements of values and character seem to be the key predictors of success in both fields.

Better Training Necessary

Dr. Gravenstein, Graduate Research Professor of Anesthesia, University of Florida, Gainesville, surveyed the status of educational modalities used for residency training and continuing education. He pointed out that both formal and informal studies have demonstrated a definite lack of knowledge concerning anesthesia equipment. He discussed the fact that we overwhelm our trainees and practitioners with clinical work, and present much of the important knowledge we expect them to master through tedious and sterile modalities such as textbooks and lectures. Learning is greatly enhanced when it is hands-on, yet little anesthesia education is systematically conducted in this fashion. New training modalities, including computer animation, training devices, and simulators may alleviate the current inadequacies of clinical educational programs.

A Case for Simulators

Dr. Cooper, Associate Professor and Director of Anesthesia Technology, Massachusetts General Hospital, reviewed the history and current status of anesthesia simulators. He discussed SIM 1, built in the late 1960's which was a technologically advanced simulation system, but never used for any significant training. Over the last ten years the available computer-based training devices have progressed from software simulations such as GasMan, a simulation of uptake and distribution of gaseous anesthetics, to hands-on-realistic simulators that interface with actual clinical equipment and with mannequins standing in for the patient. Dr. Cooper then reviewed his own experience in bringing the CASE (Comprehensive

Anesthesia Simulation Environment) simulator to Boston for a three-month trial. The goal of this trial was to determine if the technology could be successfully used at an institution other than the one in which it was developed. Dr. Cooper showed a number of slides of the system in use at Harvard and

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INTERFACE is the official newsletter of the Society for Technology in Anesthesia. The newsletter is published quarterly and mailed directly to the membership of the society. The editors invite suggestions, contributions and commentary about published items. Please send all correspondence to:

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The newsletter is printed on recycled (and recyclable) paper.

STA '93:

Technology and the Third World: A Plea for Humanism

Carlos Parsloe, MD

Dr. Carlos Parsloe, Past-President of the World Federation of Anesthesiologists, provided an insightful and thought-provoking talk that will long be remembered as one of the most outstanding at any STA event. At the outset, Dr. Parsloe retitled his talk

"A Plea for Humanism" emphasizing that technology must be subservient to social imperatives. He then outlined with understated, but compelling passion, the problems facing the third world and the role of technology for the inhabitants of that world.

The Third World Defined

Parsloe demonstrated how the third world has been defined historically, geographically, and politically. Regardless of the definition, the essence of the third world has always been a lack of infrastructure with a sense of exploitation by the "first" world. He suggested that today, the traditional sense of the third world as existing in certain locations must disappear. Rather, the third world exists all around us and can be termed more accurately, the "slow" world. The fast world has realized the benefits of modern society (nutrition, health care, education, security), and the pace at which these benefits accrue continues unimpeded. The slow world, however, is at best standing still; its inhabitants unable to move forward because of malnutrition, disease, and poor education. Even

"Give me a healthy, well nourished, first world child and simple, reliable anesthesia equipment rather than a malnourished, anemic third world child and sophisticated technology."

worse, they have no hope for a better future. Unfortunately, a small percentage of the world's population inhabits the fast world and the gap between the two worlds continues to widen.

The Evolution of Technology in the Third World

Parsloe emphasized that technology is by no means foreign to the third world using the example of the curare dart — a seemingly simple device that required tremendous innovation and insight to develop. The drug had to be isolated in sufficient quantities and purity to be effective. A delivery device, the blow gun, had to be developed. Finally, the inventors had to determine that it was safe to eat the meat of an animal killed using this poison. This technological development had a tremendous positive impact upon the life of the people.

Parsloe suggested that although there have been many first world developments that have helped the third world, in contrast to the curare dart, many "advances" have not had such a

positive impact. Weaponry and military technology have enabled people to resolve conflicts in an increasingly deadly fashion. Miner's who extract valuable raw materials for use in the first world work under primitive conditions, without regard for their safety. In

the slow world, life and labor are cheap and human rights are not an issue. Parsloe emphasized: human needs have become subservient to technology.

Dr. Parsloe then asked the question: Does the slow world really need technology, and if it does, in what form and how should it be introduced?

What Does the Third World Need?

Parsloe pointed out how sorely basic human needs are lacking in the third world. It is estimated that 13 million children die annually due to lack of food. Food, water, housing, healthcare, fertile ground, and education are major priorities for the third world and supercede many of the technology needs that are considered important in the first world.

According to Parsloe, much of the technology currently used in the third world to deliver anesthesia is extremely effective. The first heart transplant patient in Sao Paulo, Brazil, was anesthetized 25 years ago using a bubble through vaporizer and a simple fluidic

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STA '93: Report on Alarms Debate

The final session of the 1993 STA Annual Meeting was a debate entitled "Alarms: What Do We Want When?" The debate began with a discussion of the role of visual alarms. Yas Fukui, Ph.D., from Tokyo Denki University urged a single integrated display, while Jan Van der Aa, Ph.D., from the University of Florida claimed that today's monitors are preferable. Dr. Fukui exhibited slides of his current single integrated display, a colorful screen with a mixture of English and Japanese labels. Most of the raw data is hidden but easily accessible for review when needed. Future smart alarm schemes integrated into this system will allow easy identification of dangerous situations. As an example, the urine output and the right atrial pressure would be analyzed and the nurse would be instructed to check for specific orders.

The Pitfalls of Integration

Dr. Van der Aa presented convincing arguments for the pitfalls of integration. He cited the lack of data showing any advantage to integrated displays noting also that crowded displays are difficult to read in a crisis. Airline pilots in fact often turn off or disregard complex displays and alarms during emergencies. Existing monitors offer familiarity and certainty of a fixed location for the data. He wondered how preferred vendors for specific technologies could be included in a single device and argued that the anesthesia "workstation" is not built by stacking waveforms on top of each other in a single monitor. Indicating his displeasure with icons and "earcons" (sounds which imitate a physical or physiological function), he speculated that the future might bring us "nosecons" and "touchy-cons." And finally he noted the great expense which



Frank E. Block, MD moderates the debate on visual alarms between Jan Van der Aa, PhD and Yasuhiro Fukui, PhD.

would be required to replace the present installed base of monitors.

During the discussion period which followed, the audience indicated its desire for separate monitoring screens, divided by organ or system function, rather than a single screen. Several individuals confirmed the desire to include a favored pulse oximeter or gas analyzer, without being "forced" to purchase a specific unit as part of an integrated device. Indeed, the audience split 50:50 on the issue of obtaining a device which would assimilate the information from existing devices for about \$20,000, instead of purchasing an entire new system for \$40,000. Finally, the audience indicated its desire to have "smart alarm" schemes in place in the next five years.

Standards for Auditory Alarms?

The second topic featured the question of standardized auditory warnings. Dr. Roy Patterson, an acoustician from the Applied Psychology Unit of the Medical Research Council in Cambridge, England, and the world's expert on auditory alarms, argued that standardization is long overdue, while Greg

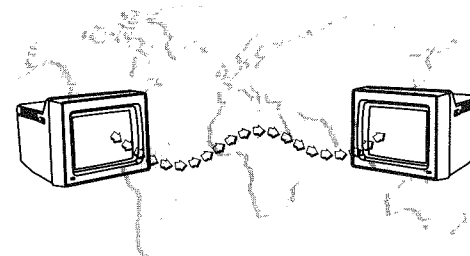
Welyzcko, manager of medical and industrial standards at Ohmeda, claimed that there was no consensus and therefore no basis for a standard. Dr. Patterson carefully explained the acoustical and historical foundation for the rational use of alarms, based upon his experiences in aviation and railroads. He explained how his research had led to the design of pulses (notes), bursts (melodies), and finally a sequence of bursts to form the whole alarm pattern. He firmly declared that auditory alarms should be limited to *life-threatening* conditions. He had developed the "Patterson alarm sounds" as a demonstration, with no intention that they would become the *actual* sounds for the operating room. He had intended a single general warning sound, and the option of adding one or two additional warning sounds based upon organ system (ventilation, oxygenation, cardiovascular, temperature, drug infusion, and artificial circulation). He emphasized the fact that the proposed sounds were far better than the present situation, and that years had been wasted with unacceptable alarm sounds because of the lack of a standard.

Mr. Welyzcko offered his extensive experience in the world of standards-making to argue that the prior attempts to standardize alarm sounds had failed, and that there were valid reasons why they had failed. Standards may stifle progress. For example, the standards currently specify a red light to mean "warning," yet blue is more visible, as indicated by the flashing lights chosen for police cars! One concern is that if multiple devices emit a single "general warning" sound, then it will be impossible to identify the alarming device! Additional non-anesthesia equipment

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SIGnatures

Notes from the STA Special Interest Group



Frank E. Block, Jr., MD

Assistant Professor of Anesthesiology
Ohio State University

The CompuServe MedSIG has had several interesting "threads" of messages recently. For CompuServe users there are also a couple of new items of interest.

Recent SIG Issues

As a practical issue, one reader complained that a message had disappeared from the forum after 48 hours. This is not correct! The time each message remains accessible is related to the amount of storage space allocated to the SIG which is determined by the amount of activity. On the MedSIG, messages are staying on the board for one to two weeks so that a weekly log on should be sufficient to check all activity. In some software programs such as CIM, however, there is a software default on the age of messages that will be retrieved. If this flag is set to two days, then your software will not find any messages more than two days old! So, the message is: Check your software!

One interesting thread involved an anesthesia malpractice case, which has now been settled. The patient's end-tidal CO₂ was decreased, and the question was whether the decrease reflected a ventilation problem, or a circulation problem caused by surgical packs which obstructed the inferior vena cava.

Another thread dealt with efforts to computerize hospitals. One participant described how every nursing station at his hospital had a FAX machine. Another person asked about automated anesthesia records and information systems for the ICU. Several respondents described their experiences and impressions. The attitudes of malpractice insurance companies and attorneys toward the automated record were also discussed. Another participant asked about available anesthesia programs for personal computers, and received numerous responses. When one anesthesiologist noted that he would use his computer to write letters and to balance his checkbook during cases, one respondent was outraged! The CPRI in Chicago, which is working toward the TOTALLY paperless medical record, was also discussed. Advantages and disadvantages of reading information off a computer screen vs. from a piece of paper were described.

One thread dealt with Patient Controlled Anesthesia and got into some issues related to proper anesthesia billing. Still another thread dealt with the use of epidural steroids for chronic back pain. Several readers discussed the failure rates of pulse oximeters. One lengthy thread discussed whether it was proper or improper to listen to a patient's heart with a stethoscope through the patient's shirt! Dr. Ted Noel, a long-time critic of the automated record, posted (with permission) a copy of his

letter which will appear in the *Journal of Clinical Anesthesia*. Readers were urged to download his letter from the library (NOEL.ASC in Library 6) and comment. Mention was made of the long-time Anesthesiology Bulletin Board Service (BBS) at the University of Iowa: 319-353-6528, 2400 baud.

Internet Access

Another thread discussed the pros and cons of the Internet system vs. CompuServe. As many readers know, Internet is a large, educational, scientific, and industrial network which links universities, research labs, and commercial firms throughout the world. Until recently, however, access has been limited to those who work for these organizations. One advantage of Internet is that it is generally FREE to the individual subscriber, though his or her university or company pays a hefty fee to be on the network. There is an anesthesia group on Internet which you can join. CompuServe members can send a mail message to:
>INTERNET:listserv@ubvm.cc.buffalo.edu
in order to join. The "subject" of the mail message does not matter. The FIRST LINE of the message itself must read: SUB ANEST-L yourfirstname yourlastname

You will then begin to receive electronic mail messages from the Internet

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Summary of Sign-On Instructions

1. Determine the access number (Usually apparent from CompuServe starter kit.)
2. Set the modem for Baud Rate (typically 1200 or 2400), 7-bit data, 1 stop bit, even parity.
3. Sign on using your User ID number and Password.
4. At the "!" prompt, type "GO MEDSIG" to access the medical forum.
5. STA uses the Subspecialty forum which is entered from the MEDSIG menus.
6. If it is not clear how to best use the forum, type "GO PRACTICE" at the "!" prompt to get the practice forum which can be used without charge.

**For CompuServe Customer Service, call (800) 848-8990
Outside the U.S., call (614) 457-8650**

STA '93: The OR Environment

Dr. Robert Loeb, from the University of California, Davis, began the panel discussion with a talk entitled "Ergonomics of the Anesthesia Workspace." He defined ergonomics as a discipline which investigates and applies information about human requirements, characteristics, abilities, and limitations to the design, development, and testing of equipment, systems, and jobs. The objective of this discipline is to improve performance by optimizing the relationship between people and their work environment. The modern airplane cockpit and the Macintosh computer were cited as notable examples of the successful application of ergonomics to improve safety and usability. Dr. Loeb discussed examples of poor ergonomic design in the current anesthesia workplace. These include the haphazard layout of displays and controls, a small and cluttered workspace, hazardous equipment such as hypodermic needles, and devices such as infusion pumps which are prone to operator error. He then suggested that effort is needed in three related areas (research, standards, and usability testing) to improve the ergonomics of the future anesthesia workplace.

Culture in the OR

Dr. William Gild, from the University of Washington, followed with a lecture entitled "Ethnography in the Operating Room." He has applied techniques of anthropology to the study of "culture" in the operating room. Culture refers to the shared knowledge that members of a group use to organize their behavior. Dr. Gild has specifically investigated the clinical interactions of cardiac anesthesiologists and cardiac surgeons, focusing on areas of joint decision-making and conflict resolu-

tion. Data was collected by observing surgical cases, interviewing group members, and attending division meetings. The study identified the period of weaning from cardiopulmonary bypass as a time of increased conflict between team members, when issues of control became more sharply focussed. Dr. Gild concluded that more work is needed to understand the effect, in the operating room, of complex interpersonal relationships on work productivity and patient safety.

Dr. Sue Bogner, a Public Health Advisor for the Food and Drug Administration, spoke on "FDA Regulations—An opportunity for Communication and Cooperation." She began by summarizing the role of the FDA in regulating medical devices. She noted that the FDA does not evaluate devices for the potential of user errors; manufacturers must only prove that the device is safe and effective when used as directed. However, of the 80,000 reports of patient death or injury (collected by the FDA in compliance with the Safe Medical Devices Act) 48,000 (60%) were a result of user error. Based on this experience, Dr. Bogner hopes to work within the FDA to develop a system for reporting equipment ergonomics problems that cause patient injury. Dr. Gaba, speaking as a representative of the Anesthesia Patient Safety Foundation, said that the APSF will be designing a system to collect information on device safety. The APSF system will be patterned after the FAA's Airline Safety Reporting System.

A Unified Data Interface

Dr. Alastair Lack, Chairman of the European Society for Computing and Technology in Anaesthesia and Intensive Care (ESCTAIC), delivered the final

presentation of the panel, entitled "Toward the Unified European Anaesthesia Interface." He noted that Europe is similar in population and number of countries to North and South America. ESCTAIC is a multinational society with representatives from over 20 countries. Currently, methods of anesthesia data collection vary considerably between countries and institutions which limits comparisons of clinical data. Dr. Lack discussed ongoing work by ESCTAIC to develop a unified data interface. This interface would be used to develop a European database of critical incidents, to produce internationally consistent training reports, and to promote multinational collaborative research. Currently, a common basic data specification has been defined. Supplementary definitions and data are planned to meet national requirements. Dr. Lack concluded by urging cooperation between ESCTAIC and STA in general, and on the problem of developing a unified anesthesia dataset in particular. ♦

- R. Loeb

FDA Seeks Reports on Ergonomic Problems

M. Sue Bogner, Ph.D., who recently spoke at the annual STA meeting regarding FDA efforts to document medical device problems, is seeking reports on ergonomic issues. Specifically, she has requested reports of problems with a medical device related to how the environment (social and physical) affects human performance with the device.

Dr. Bogner's mailing address is: M. Sue Bogner, Ph.D., Center for Devices and Radiologic Health, Food and Drug Administration, Rockville, MD 20857, (301) 443-4600. She can also be reached by electronic mail at msb@fdadr.cdrh.fda.gov.

UPCOMING EVENTS

AMIA Spring Congress

May 9-12, 1993

American Medical Informatics Association
The Electronic Patient Record: Obstacles and Opportunities
Adams Mark Hotel, St. Louis, MO
Info: AMIA, 4915 St. Elmo Avenue
Suite 302, Bethesda, MD 20814
(301) 657-1291, FAX (301) 657-1296.

ESCTAIC Annual Meeting

October 6-9, 1993

The European Society for Computing and Technology in Anesthesia and Intensive Care
Goldegg, Austria
Info: Dr. Leo Moser, Anaesthesiologie
P.O. Box 30, A5014 Salzburg, Austria.

ASA Annual Meeting

October 9-13, 1993

American Society of Anesthesiologists
Washington, DC Convention Center
Info: ASA, 520 North Northwest Highway
Park Ridge, IL 60068
(708) 825-5586, FAX (708) 825-1692.

SCAMC 17

October 31-November 3, 1993

Symposium on Computer Applications in Medical Care
Sheraton Washington Hotel
Washington, DC.
Info: AMIA, 4915 St. Elmo Avenue
Suite 302, Bethesda, MD 20814
(301) 657-1291, FAX (301) 657-1296

STA '94

January 27-29, 1994

Society for Technology in Anesthesia
Learning About Technology—Technology for Learning,
(Co-sponsored by the Society for Education in Anesthesia and the Anesthesia Patient Safety Foundation.)
Walt Disney World Dolphin, Orlando, FL
Info: Kim Roberts, Executive Director, STA
11512 Allecingie Parkway
Richmond, VA 23235,
(804) 378-4959, FAX (804) 379-1386

STA '93: Music and Reading in the Operating Room

During the final session of the 1993 STA/ISCAIC meeting in New Orleans, Dr. Grogono lead a lively discussion about music and reading in the operating room. He reviewed the continuing small incidence of death under anesthesia and reminded the audience that nearly a quarter of private practitioners surveyed admitted to committing a lethal error. Dr. Grogono went on to discuss whether sources of distraction involving noise and communication contribute to these errors. High levels of noise negatively affect the processing of information and interfere with perception; noise activates the sympathetic nervous system and induces physiological change consistent with stress. By contrast, quiet white noise improves complex task performance. Music is merely one example of environmental noise, and familiar background music appears to improve vigilance and monitoring performance. Interestingly, discontinuous music, or interrupted periods of music, appears to improve this enhancement.

Is it OK to Read in the OR?

Some communication in the operating room is essential. Conversation and reading are the two most obvious modes of communication. Much of the conversation in an operating room is necessary, provides information, and may even be a source of arousal and alertness. Talking can however be irrelevant, disturbing or distracting. At first sight, reading would appear to be solely a source of distraction. No one else is involved and reading occupies an individual much more intensively than does talking. However, anesthesia equipment now includes computers that display text about drugs, diseases, and techniques. The clear implication is that the anesthesiologist will be permitted, and

even expected, to read important material on the computer screen. Indeed, the anesthesiologist is already expected to read lab reports, X-rays, monitoring equipment, the anesthesia record, the electrocardiogram, and blood gas results. All of these are tolerated or even regarded as desirable. By contrast, most other sources of reading material tend to be deplored since they have no obvious role in patient care.

The audience followed Dr. Grogono's presentation by providing an animated discussion about their own experiences. Some important observations emerged. One was that there is a strong tendency to discourage reading in others while tolerating it in ourselves. Thus, an individual faced with a long case that he is managing alone, may well decide that it is reasonable and appropriate to have some reading material available. Some speakers even felt it was one more stimulus which could contribute to alertness during a long case. By contrast, when covering a resident or nurse anesthetist, we appear to feel less comfortable when we observe an individual reading. Several speakers strongly deplored the widespread use of music, but on the whole the audience agreed that music contributes to peace and harmony in the operating room provided it is appropriate and can be stopped upon request. There also appeared to be agreement that, when young, we are able to function in the presence of continuous extraneous noise whether arising from the environment, television, radio, or record player, and that this tolerance for noise diminishes with advancing years when we then find that extraneous noise is an undesirable intrusion.

The animated discussion continued well beyond the allotted hour. ♦

- A. Grogono

President's Message

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The Fiscal Challenge

The Board of Directors and the Officers of STA are committed to maintaining this Society as a dynamic and viable organization. As discussed at the annual business meeting in New Orleans, our current challenge is the fiscal health of the Society. In order to promote growth of programs and activities in the early years of the Society, expenses have exceeded revenues. As a result, STA has, at this time, a cash shortfall of approximately \$6,000. There are many actions we can do to correct this problem and the solutions require the involvement of the entire membership.

STA must become more prudent in its expenditures. The Board of Directors has cut approximately \$40,000 from the 1993 budget, projected at \$118,000. This includes the activities of the annual meeting, operation of the National Office, the program held during the ASA, the newsletter, and the publication of the *Journal*. With projected revenues from dues, the annual meeting, the activities at ASA, corporate sponsors, and other promotional activities, such as the videotapes of STA '92, we believe that a balanced budget is possible.

In addition to cutting costs, we have restructured the membership and dues into several categories designed to stimulate growth. Each STA member can help by encouraging an associate or colleague to join the Society. If the membership can double, the shortfall will be overcome in no time.

The videotapes produced at STA '92 will be available in April at a cost of \$75 each or three for \$210. (See information on page 23 of this newsletter). I encourage everyone to purchase copies of these tapes. There was a great deal of information exchanged during that meeting, and the Promotion Committee has worked very hard to produce a comprehensive review at a reasonable cost. If

you have additional ideas for generating revenues, please contact me.

Planning for 1993 is well underway and I look forward to another great year for STA. I hope all of you can join us at the ASA meeting in Washington, DC, and at the STA '94 Annual Meeting in Orlando, Florida. ♦

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Membership

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new brochures have been printed, and the Membership Committee has expanded representation and sharply focused goals. An important next step must come from the current membership. **Spread the word about STA!** If each member brings in only one additional member, the Society will double in size and with that growth will come financial stability and, more importantly, an even greater diversity which is the true strength of the Society. The current committee members are focused and enthusiastic. We welcome suggestions regarding how we may improve or expand our current membership services.

All members receive the official STA newsletter, *Interface*, and discounts on the *Journal of Clinical Monitoring* subscription, and registration for the STA Annual Meeting. The \$20 initiation fee covers the cost of the membership kit which includes a membership card, and STA-logo binder to store the membership directory and copies of *Interface*. In addition, the membership directory will be available on diskette for a nominal charge. The dues categories have been revised in an effort to make membership more available and attractive to a wider group.

Individual Membership: The cost is \$150 and includes all member benefits including an annual subscription to the *Journal of Clinical Monitoring*.

Resident/Student Membership: Available to resident physicians and students of other disciplines e.g. engineering. The fee is \$30 and does not

include the *Journal* or the membership kit. The membership kit will remain available for an additional \$20.

Affiliate Membership: Members of affiliated societies are encouraged to join STA at a special rate of \$45. Currently, this category of membership is open to anesthesia technicians and technologists who are members of their state and national societies, and to members of IEEE and AAMI.

Corporate/Institutional Sponsorship: Sponsoring institutions receive unique benefits for the \$1,000 annual dues, including one subscription to the *Journal of Clinical Monitoring*; five copies of our quarterly newsletter, *Interface*; a Recognition of Sponsorship plaque; and a discount for Annual Meeting exhibit space.

As a special incentive, the initiation fee is waived for individual members joining in 1993. Remember, it is up to each of us to nurture the growth of our Society, so let's set our goals on recruiting two members each by July. ♦

- J. Goldman

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Improving the Provider

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described the experiment as successful in both the technology transfer and training of instructors. He showed data from questionnaires indicating a positive response from most (but not all) of 72 residents and faculty who went through the crisis management course.

There was significant discussion after Dr. Cooper's talk regarding the cost-benefit of simulator-based training. He and Dr. Gaba indicated that it will be very difficult to objectively measure the benefits of such training and that it is expensive. Dr. Gaba pointed out that the simulator should be seen as a resource not only for anesthesia training, but for training of OR, PACU, and ICU nursing personnel, and for equipment evaluation and testing. ♦

- D. Gaba

News from ESCTAIC

(European Society for Computing and Technology in Anaesthesia and Intensive Care)

The ESCTAIC 1992 Annual Meeting was held once again at a medieval castle in the beautiful village of Goldegg and gathered about 250 participants. Topics related to computing dominated the meeting, which began with a series of four tutorials. Drs. Nathe and Gross-Alltag from Ulm, Germany, reviewed the basics of computer hardware and operating systems, while Mr. Kniger, representing Hewlett-Packard Europe, addressed advanced issues of relational databases. Dr. Jones, from Wales, U.K., presented a fascinating update on the morphology and action of computer viruses. Generally speaking, the papers presented illustrated the diversity of levels of development in different parts of Europe.

The session on Knowledge-Based Systems began with a state-of-the-art review of AI applications in Intensive Care Medicine presented by Dr. Silvia Miksch from the Austrian Research Institute for Artificial Intelligence. Dr. Miksch also discussed the knowledge-based decision support system for infant ventilatory support, currently under development in Vienna. Interesting expert systems for adult critical care were presented, as well as several examples of the application of knowledge based technology for interpreting large sets of clinical data.

Several papers dealt with computer-aided presentation of multiple clinical data, either by means of advanced graphical display techniques which demands significant computer power, or by presenting derived variables, which requires significantly less advanced hardware.

Solutions presented in the session on Patient Data Management Systems (PDMS) varied from advanced mainframe Hospital Information Systems and network Patient Data Management Sys-

tems to relatively simple databases on stand-alone microcomputers.

Several anaesthesia record keeping systems were presented, from optically readable anaesthesia protocol systems to complex PDMS networks. The relatively inexpensive systems based on scanning of hand-written anaesthesia protocols allowed for standardization of data collection at more than 20 German hospitals. This, in turn, made it possible to use the anaesthesia documentation as the tool of quality control and to perform comparisons of quality related variables between hospitals.

ESCTAIC Visits Sicily

The 46th National Congress of the Italian Society of Anaesthesia, Analgesia, Resuscitation and Intensive Care was held in Sicily on October 21-24, 1992. A prominent feature of this meeting was the Symposium on Applications of Computing in Anaesthesia, Resuscitation and Intensive Care which was organized by the Italian member of the ESCTAIC Steering Committee, Dr. Vincenzo Lanza. Presentations were made by Dr. Lanza and his ESCTAIC colleagues, Dr. Malvena Stuart-Taylor and Dr. Gavin Kenny.

Dr. Lanza presented his development of an anaesthetic workstation with typical Italian flair and the use of superb graphics. Dr. Kenny discussed the pharmacokinetics of intravenous anaesthesia and described the use of computer-controlled infusion systems to facilitate the delivery of intravenous anaesthetics. Dr. Stuart-Taylor explained the need for agreement on datasets which provide a common basis for assessing the quality of anaesthetic services. The problems of data collection were presented and the benefits of establishing this type of unified data set were outlined.

Vincenzo Lanza must be congratulated for persuading the organizing committee of this prestigious Congress to provide the time and space for the Symposium in which ESCTAIC had the opportunity to present some areas of European development. ♦

- A. Dellermalm

Travel and Meet New Colleagues Through ESCTAIC

The ESCTAIC has planned the locations for its annual meetings through 1995. Each venue offers an opportunity to visit a beautiful and exciting location in Europe. These meetings offer STA members an opportunity to meet an interesting group with many common interests as well as to visit a location which is changing in many fascinating ways. The upcoming meetings and locations are:

- ♦ October 6-9, 1993: This is the last meeting planned for Goldegg, Austria, a beautiful village nestled in the Austrian Alps. Visitors to this meeting have enjoyed the setting of a medieval castle and well-planned meeting programs.
- ♦ October 1994: Annual meeting planned for Halkidiki, Greece in October. Exact dates TBA.
- ♦ October 1995: Annual meeting in Warsaw, Poland.
- ♦ May 1995: Joint meeting planned of ESCTAIC and the Swedish Society for Anaesthesia and Intensive Care in Uddevalla, Sweden.

It is not too early to begin making plans to attend these meetings. Many of our colleagues in ESCTAIC are available by E-mail for travel advice.

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Report on Alarms Debate

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in the operating room, such as warming blankets, electrocautery, lasers, etc. would complicate any proposed "simple" system. Ohmeda estimates the cost of adding the capability of producing the multiple-frequency alarm sounds to a device to be about \$30. While this figure seems small for an integrated medical monitor, it could add significant cost to an inexpensive device. A 2.5-inch speaker would also be required for good fidelity, and there may not be a suitable place to put it. His final objection to the proposed standard was that it was a fantasy to imagine that, on a single day, all devices would comply with the standard. Instead some device would remain in use for many years, and further confusion would result from the use of old and new alarms together.

In the second part of the discussion, most of the audience indicated that they had had the unwelcome experience of hearing an alarm and yet being unable to locate the source readily. No one in the audience wanted today's alarms in the future. The majority of the audience, however, preferred to have the six Patterson "organ system" sounds instead of a single warning sound!

The lively discussions suggested that the audience enthusiastically enjoyed the session. Many manufacturers attended, and the hope of everyone will be that we shall have better displays and better alarm sounds in the future. ♦

—Frank E. Block, Jr.

SIGNatures

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system—everything which is addressed by anyone to the mailing list. **WARNING:** CompuServe CHARGES you to receive mail from Internet if you are on the "basic service" (flat monthly rate)

plan. Depending upon the volume of mail which is going to be sent to this "anesthesia list," these charges may be substantial. If you are on the "pay as you go" plan, then you pay only the connect charges.

There are a variety of ways to interact with the anesthesia mailing list on the interenet listserver. The following commands can be sent to the listserver by making the associated text the first line of your message.

Command	Text
Stop Getting Mail	SIGNOFF ANEST-L
List of Archives	INDEX ANEST-L
Acknowledge all mail	SET ANEST-L ACK
Acknowledge interactive mail	SETANEST-LMSGACK
No mail acknowledgement	SET ANEST-L NOACK
Names of people on list	REVIEW
Your name omitted	SET ANEST-L CONCEAL
List of Commands	INFO REFCARD

To send a message to everyone on the list simply send your message to:

>Internet:anest-l@ubvm.cc.buffalo.edu

Andrew Sopchak is running the list, and he can be reached at

>Internet:sopchaka@vax.cs.hscsyr.edu

for questions or comments. Today, I received half a dozen messages over the list, and the rate of use may pick up rapidly. Note that we are just beginning to use this list, and there may be some glitches as it all gets going! This Internet option is available to anyone with access to CompuServe or Internet. In a sense, it may be seen as "competing" with our SIG on CompuServe, but we are all in favor of anything that promotes ease of communication. This column will report on what is happening both on CompuServe and on the ANEST-L on the Internet.

Good luck! ♦

STA '93: Design Issues For Future Anesthesia Technology

On Wednesday afternoon a panel entitled "Design Issues for Future Anesthesia Technology" was convened and moderated by Jerry M. Calkins, Ph.D., M.D. The presentations involved a potpourri of some of the current design issues.

The first speaker was Christine M. Mitchell, Ph.D. whose presentation was entitled "Machine Centered Verses Human Centered Automation." Dr. Mitchell compared situations in which the primary focal point of any workstation, whether it is industrial or anesthesia, has certain requirements which center around the equipment and the human interaction with that equipment.

This presentation was followed by the "Pitfalls of Automation in Anesthesia" presented by Gavin Kenny, M.D. Dr. Kenny focused on personal experiences at the Royal Infirmary in Glasgow with intravenous drug infusion. The presentation included a description of the components of an automated system which requires an input signal, controller, an output device to deliver

the drug with appropriate safety, and application techniques.

The third presentation was provided by Yoshimitsu Sanjo, Ph.D., a colleague of Kazuyuki Ikeda, M.D., dealing with the Novel Display aided simulation with the actual delivery of an anesthetic agent. This system requires an appropriate computer model with adequate interpretive displays.

The final presentation was made by the moderator, Dr. Calkins. He presented an "Update on STA '92: The Anesthesia Workstation" and summarized the similarities between each of the 16 design teams. Each team had concluded that the anesthesia workstation of the future must be extremely versatile. The major components must be physically and functionally integrated, as well as, automated in such a manner that it helps the anesthesiologists accomplish his/her role as a decision maker.

At the conclusion of the panel, various topics and solutions were discussed by the audience and panelists. ♦

—J. Calkins

Technology and the Third World

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ventilator. Anesthesia technology too often is acquired to "have" it rather than to "use" it. Funds are often allocated for the purchase of equipment but not for maintenance and education. As a result, technology often sits idle, having consumed resources that would have been better used elsewhere.

Parsloe identified many problems facing the introduction of technology into the third world. A reliable source of electrical power that will not damage new equipment is a major problem in many places. The users of the equipment may have language barriers that lead to a lack of understanding of how to use equipment properly.

Parsloe called for professional societies to learn about third world needs side-by-side, not to teach them in the ways of the first world. The World Federation of Anesthesiologists Task Force on Anesthesia Safety developed the International Standards for Safe Anesthesia Practice which was meant for the third world countries, yet there was not a single participant on the committee from these countries. Parsloe warned that the introduction of technology into the third world will not be successful if the third world is perceived as a passive recipient of first world ideas. Technology that serves human needs will have the greatest impact, but can only be introduced with a true understanding of the problems facing the third world.

"Give me a healthy, well nourished, first world child and simple, reliable anesthesia equipment rather than a malnourished, anemic third world child and sophisticated technology," Dr. Parsloe concluded. ♦

Editor's Note: This summary of Dr. Parsloe's impassioned lecture does not convey the impact of his remarks on the audience who stood and applauded for several minutes when Dr. Parsloe concluded.

STA '92 Videotapes Available

STA '92-Design of the Workstation

Tape 1 - Data Acquisition

Tape 2 - Data Processing/Information Management

Tape 3 - Data Display-Human Factors/Human Error

Videotapes will be available in April for \$75 each or three for \$210.
To order your tapes or for more information, contact the National Office at
(804) 378-4959.