President's Message

Where Are We Now? Where Are We Going?
Matthew B. Weinger MD, STA President

THE PRESENT STATUS OF STA

STA is financially sound (our reserve has risen over the last 3 years), professionally managed (thanks to Beverlee Anderson – soctecanes@aol.com), and has a stable membership (including our cherished corporate members and a substantial number of non-American members). We have much for which to feel proud. STA continues to be an informal and fun academic organization where we can forge meaningful relationships for the purpose of friendship, collaboration, consultation, and learning. Our efforts have made a measurable impact on the advancement and dissemination of technology in our specialty. STA runs an exciting annual meeting each winter (see article in this issue about the most recent Annual Meeting in Orlando) and the next Annual Meeting, to be held in Scottsdale, AZ will focus on Information Technology (contact Jeff Feldman at jeff.feldman@att.net if you would like to participate in meeting organization). STA also sponsors a very well received ASA Breakfast Panel each year, and holds a well attended annual dinner meeting at the ASA. Charlotte Bell (charlotte.bell@yale.edu) has done a terrific job with the STA/ASA program and has exciting plans for this coming October in San Francisco.

Merger with Society for Computers in Anesthesia and the STA Sections on Computing and Simulation

STA has "merged" with the Society for Computers in Anesthesia (SCIA) and as a part of the agreement, STA accepted responsibility for organizing and supporting the annual Computers in Anesthesia post-ASA meeting. Members of SCIA will still be responsible for the scientific program (contact Lee Welter at lowelter@ucdavis.edu) and will work with the STA BOD to assure a successful meeting. The next CIA meeting will be held in a scenic locale near the Bay Area (the ASA meeting is in San Francisco) beginning Wednesday October 19, 2000. You will hear much more about this meeting in future months. An additional aspect of the SCIA-STA agreement was to encourage all SCIA members to join STA. To further support our new members and to enhance the visibility of informatics in STA activities, we have created a new Section on Computing (contact Julian Goldman (julian@acmeanesthesia.com) or Lee Welter).

STA is the only anesthesia society

> *Our efforts have made a measurable impact on the advancement and dissemination of technology in our specialty.*

President's Message

(Continued from page 1)

that specifically supports and provides a formal structure for those with an interest in simulation in anesthesia. Yet, it is disappointing that more anesthesiologists working in the simulation field are not active STA members. To address this concern and better understand the needs of this group of researchers, educators, and practitioners, Dan Raemer (draemer@partners.org), the Director of the Section on Simulation, recently sent a survey to more than 50 people. The survey addresses potential goals for the Section and the best structure and format for future simulation meetings. Please contact Dan if you have opinions or wish to participate more actively in the Section.

Section on Electronic Data Transfer

Two STA committees continue to make important contributions to the broader public. The Electronic Database Committee under Gordon Gibby's (Gordon@anest4.anest.ufl.edu) leadership has been working for several years to facilitate the electronic transfer of patients' anesthesia information between hospitals. Last year, STA announced an RFP for a standard approach to this important clinical problem. Although the re-

Education about technology in other fields, about cutting edge scientific and technological advances, and access to clinicians, consultants and opinion leaders are all roles that STA has played in the past and we must continue to enhance in the future.

sponse from industry has thus far been limited, recent federal government activities and the increased public emphasis on health care quality should move this process forward. Among several initiatives, the Standards Committee (contact Al Perrino at 76467.727@compuserve.com) is creating a web-based repository of software protocols for interfacing with medical devices. This project is expected to yield a valuable resource for those in industry, academia, or private practice wishing to enable direct device-device communication.

Communication

STA continues to strive to enhance its communication with its members, with related societies, with industry, and with other interested folks. We continue to be part of the World Societies of Technology in Anesthesia (WSTA) and our members participate in the activities of the European and Japanese societies. If you are interested in these international activities, please contact Dwayne Westenskow (drw@cc.utah.edu). Under Jeff Feldman's (Jeff.feldman@att.net) editorial direction on this side of the Atlantic, the JCMC remains one of the Society's most important information conduits to industry and to our colleagues throughout the world. STA will continue to try to enhance our

relationship with JCMC with an emphasis on improving content, timeliness, and wider dissemination.

STA is committed to a paperless communication system. The Newsletter (contact George Blike at george.t.blike@hitchcock.org) will now be distributed electronically (unless you ask Beverlee for a hard copy). Although JCMC is still a long way from being accessible electronically, we are working on this. Ty Smith (tysmith@ucsd.edu) is leading a committee that is exploring the creation of a new electronic anesthesia technology journal. Up

President's Message

(Continued from page 2)

until now, the STA web site has been less than many of us would have hoped. A recently forged agreement with GASNET and substantial effort by a number of STA members will yield substantial changes in the STA web site, now under the direction of webmaster Butch Loeb (Rloeb@u. arizona.edu)**.**

STA IN THE TWENTY-FIRST CENTURY

However, we can not be complacent. STA must begin to position itself for an important role in the twenty-first century. It is anticipated that the technological advances in the next 25 years will be extraordinary, dwarfing those in the last quarter century in terms of their impact on everyday life (and our professional lives). STA must continue to change as technology changes. Our meetings, activities, and membership must reflect current technological trends. Importantly, our society must guide the rest of our specialty through this technological revolution. This can only be accomplished if we encourage research, promote education, and importantly, continue to foster a close collaborative relationship with industry.

Industry Partnership

Although I do not have good data to support my impression, I feel that industry participation in STA has diminished slightly and fewer individual industry members are playing an active role in STA committees and meetings. STA relies on the medical device industry in many ways – financial support, an outlet for our members great ideas, reality testing for academic research, mutual advancement of cool new technologies, individual consulting relationships, etc. Additionally, one of our missions is to educate our corporate brethren in the real needs of the practicing anesthesiologist (reality testing for their ideas and products). Yet, not enough of our industry members come to the Annual Meeting because it's a great meeting for them personally rather than because there are corporate incentives (i.e., selling product) to do so. We need to determine the needs of all of our members so that STA can ascertain the best way to meet those needs. Education about technology in other fields, about cutting edge scientific and technological advances, and access to clinicians, consultants and opinion leaders are all roles that STA has played in the past and we must continue to enhance in the future. But, we must reach out to industry and explore alternatives to our traditional relationships. Jeff Feldman (jeff. feldman@att.net), David Feinstein (dfeinste@caregroup.harvard.edu), and Jim Philip (Jphilip@zeus.bwh. harvard.edu) are part of a Task Force to examine these issues. We will be developing a database of industry contacts to facilitate communication. Please contact any one of these STA members if you have ideas, suggestions, or contacts.

STA Officers

President   Matt Weinger
mweinger@ucsd.edu

President Elect: Dan Raemer
raemer@harvardmedsim.org

Secretary: Charlotte Bell
charlotte.bell@yale.edu

Treasurer: Butch Loeb
rloeb@u.arizona.edu

At Large: Fritz Stawitcke
stawitcke@hpl.hp.com

Remaining Directors at Large:
Gordon Gibby
gordon@anest4.anest.ufl.edu

Mike Jopling
mjopling@columbus.rr.com

All Board members welcome comments from members. Anyone interested in serving on the Board should contact:

David Feinstein
Dfeinste@caregroup.harvard.edu

Education and Research

As the newly elected President of STA, one of my primary goals is to see the Society make greater progress in a core mission - to enhance the acquisition and dissemination of knowledge of anesthesia technology. Toward this end, STA must address to a much greater extent to two specific areas: Research and Education.

With regard to Technology Research, STA must:

1. Begin to provide support for technology research.

President's Message

(Continued from page 3)

2. Strive to improve the quality of technology research performed.

3. Assure that the resulting knowledge is widely disseminated in a timely and relevant manner.

4. Facilitate the appropriate incorporation into anesthesia practice.

With regard to Technology Education, STA must:

1. Raise the level of awareness of practicing anesthesiologists, anesthesia residents, medical students, and ancillary anesthesia personnel about technology and its impact.

2. Assure that these constituencies are appropriately educated in the core technology knowledge essential to safe and effective clinical practice.

We have begun to make progress in both of these areas. Steve Barker (sjbarker@u.arizona.edu) is in charge of a Committee charged with developing a technology education program for anesthesia residents. This will include continuation and dissemination of the JCMC Minitutorial publications (contact Nik Gravenstein Sr. for more information (jgravens@anest2.anest.ufl.edu)), creation of a syllabus and bibliography, and development of sam-

ple exam questions. This program is in its infancy and every STA member could and should contribute in some way. In the future, we hope to expand this endeavor to medical students – the development of medical educational objectives in technology would be a tremendous contribution and could be undertaken in collaboration with other technology oriented specialties. Contact Steve if you are interested in participating in these initiatives.

Fritz Stawitcke (stawitcke@hpl.hp.com) and the other members of the Research Committee have done a great job reviewing and judging scientific abstract submissions at the ASA and for the STA Annual meeting. The creation of STA Research Awards is an important step in our efforts to promote and enhance technology research. The next logical step would be to provide financial support for new technology oriented research. This year, STA will begin to develop a Technology Research Grant program, probably patterned after the APSF's highly successful research grant program. We will be in contact with industry and other societies to determine alternatives for financial support of the program. Initial steps will include drafting of a request for proposals that will elucidate the types of projects that would receive favorable consideration and the process for applying. It is not anticipated that grants will be awarded prior to 2001. If you are interested in contributing to this new endeavor or other research related activities, please contact Fritz.

The Subspecialty of Anesthesia Technology

Through the efforts of STA and its members over the last 10-15 years, I believe we have successfully created the "subspecialty" of "Anesthesia Technology". A goal of the society should be to introduce our subspecialty into the mainstream of Anesthesiology and place it on an equal footing with other subspecialties such as neuroanesthesia or obstetric anesthesia. I define the "anesthesia technology subspecialty" as encompassing both "basic" sciences (electrical and mechanical engineering, physics, mathematics, computer science, cognitive science/human factors, etc.) as well as more "applied sciences" (including medical device development and testing, clinical simulation/education, anesthesia ergonomics, etc.). Thus defined, anesthesia technology actually impacts on and encompasses many other anesthesia subspecialities (e.g., technology is enabling for TIVA). Unfortunately, because of this cross-pollination and the fact that "technology" does not directly associate with a distinct clinical patient population, the field has not grown as rapidly as other anesthesia domains, is not appreciated as a true subspecialty by the ASA, ABA, or practicing anesthesiologists, and in many ways, like Rodney Dangerfield, "gets no respect". STA needs to address this issue directly and effectively. Those with ideas on how STA could accomplish this admittedly difficult task, please contact me directly at mweinger@ucsd.edu.

STA 2000
A Successful Meeting

S TA 2000, held in Orlando from January 13-15, was a great success. As usual, a fine scientific program was complemented by a lovely resort location and enjoyable social events. Most important was the opportunity for STA members from medicine and industry to spend time together discussing the role of technology in anesthesia both now and in the future.

Thursday, January 13th

<u>Session I</u>

Anesthesia Informatics

Drs. Gordon Gibby and Michael Jopling, moderators.

Dr. Richard Epstein led off with a fascinating description of his efforts at Jefferson to develop a patient tracking and routing system

Disney Coronado Springs Resort

for their anesthesia preoperative patient testing center. He recommends buying a commercial system with an open architecture (e.g. ODBC) and adding the features that are inevitably missing.

Nina Geiger, MD from the University of Florida Department of Radiology discussed their experience replacing their traditional report transcription process with a commercial voice recognition system. All customization, installation, and training (2 hours per dictator) was accomplished in a month. Their full-featured system has allowed them to replace 8-9 FTE transcriptionists with 1 FTE administrator and a 0.25 FTE technician. This combined with dramatically reduced turnaround time, improved billing cycle, and savings on paper will allow a payback within 2 years.

Michael Husband from MetaSensors, Inc. discussed new testing devices and opportunities made possible by their microfluidic chip technology. By measuring certain physical properties of a gas mixture and applying the appropriate mathematics, they can currently measure the concentration of any three gases in a mixture inexpensively, with very high accuracy, in real time. Additions to their sensor array will allow up to 5 gases in

the future. We can expect monitors that are very small and cheap, yet very accurate.

Dr. Gibby then gave a sobering presentation in which he explained a perceived loophole in recently proposed federal (Department of Health and Human Services) regulations which may allow detailed medical records to become available to third party payors without your knowledge or consent either as a patient or a provider! Objections have been voiced by various groups, and Dr. Gibby urges the STA to comment publicly on this issue.

Dr. Michael Jopling from St. Anne's Hospital at Ohio State described and recommended the "webification" of our anesthesia departments. Citing Bill Gates' arguments in "*Business at the Speed of Thought,*" Dr. Jopling urges us to start realizing the benefits of an all-digital infrastructure in our own departments. Starting with administrative functions like scheduling and moving on to patient care workflow, we could start to realize benefits immediately.

Finally, Dr. Jeff Rose of the CyberPlus Corporation and Kaiser

STA 2000

Permanente Colorado gave a fascinating discussion of managed care in the information age. The size and growth rate of our healthcare expenditures are eating us alive, and between half and two-thirds of the controllable rising costs are due to increases in the volume and intensity of medical services which are determined by our clinical decisions. He offers an information network as our "Ariadne's Thread" providing a path to safety out of our current maze. In short, we must be able to gather and access data on our own patients in order to be able to practice effective and economical evidence-based medicine.

Next, John Wise from Embry-Riddle University discussed predictive displays in aviation and medicine. The military has found that substituting a velocity vector indicator for a traditional attitude indicator improves pilot performance by focusing on where the airplane is going next rather than simply its current state. He speculates that a similar approach might be useful to us.

Finally, Dr. Dwayne Westenskow from the University of Utah dis-

Preparing To Open The Meeting

cussed advanced anesthesia displays. A survey of the history of displays in various domains showed that displays based on human factors principles enhance performance relative to traditional displays. Therefore, he advocates a multi-panel graphical display for our monitors organized by functionality and level of detail.

Thursday Afternoon

The afternoon was devoted to a series of simulator user group meetings and a dinner. In addition there were field trips to Lockheed and Epcot. Otherwise attendees had the opportunity to examine the exhibits and posters as well as network informally.

Friday Morning

Session II

Virtual Reality: When?

Dr. Richard Bartkowski, moderator

W. Bosseau Murray from Hershey began by discussing what's needed before VR is really ready. He reviewed the basics of VR, cited some current examples, and speculated that teachers will need to learn new methods to effectively use this medium.

Dr. George Sheplock from Indiana University described the creation of very useful training materials using currently available tools and technology like MacroMedia Director and LabView. He demonstrated some of his own very successful efforts.

Finally, Dr. Richard Rowe from Oakland Children's' Hospital described the virtual bronchoscopy simulator from HT Medical. A cost analysis of this commercially available product indicated a cost savings of $2400 in the first year alone followed by $30,000 per year thereafter as compared with traditional methods of teaching fiberoptic bronchoscopy in his institution.

Session III

Monitors: What's Missing

Dr. David Seitman, moderator.

Dr. Sheldon Goldstein from Robert Wood Johnson began with an exhaustive discussion of the use of TEE during non-cardiac surgery. His basic thesis was that this modality is under-utilized due to lack of training.

Next, Dr. Seitman discussed various artifacts and inaccuracies in current monitored data that we all tend to assume is accurate.

Julian Goldman, MD of Masimo followed with a discussion of signal extraction from noisy pulse oximetry data. A review of how pulse oximetry works and the various sorts of noise to which it is subject was followed by a discussion of various attempts to deal with the noise. Ultimately the proprietary adaptive filtering approach of Masimo was explained.

STA 2000

Friday Afternoon

<u>Session IV</u>

Abstract Presentations

Dr. Kirk Shelley, moderator.

<u>Session Va</u>

Simulators in Education

Dr. Daniel Raemer, moderator.

Dan asked the panel to address the educational, acceptance, and technological progress made by the simulation community to date and where they thought we were headed in the future.

David Shaffer, PhD., an educator from the MIT Media Laboratory, spoke on a paradigm for designing simulation technology using a well-defined curriculum.

Lindsey Henson, MD, Assistant Dean of Continuing Medical Education and an Anesthesiologist at Rochester, spoke on the use of simulation for educating medical students and the expanding use of simulation outside of anesthesia skills training.

Bosseau Murray MD, Director of the Simulation Laboratory at Penn State, discussed the progress of Crisis Resource Management Training throughout the world. He cited a large number of centers conducting CRM courses and discussed the

various modifications of the course content he had uncovered.

Dan Raemer, Ph.D., Program Co-ordinator at the Center for Medical Simulation in Boston, surveyed the commercial and academic developments worldwide. He challenged the community to advance simulators to the next level of realism and function

<u>Session Vb</u>

Computing Skills to Advance Medical Knowledge

Dr. Alan Grogono, moderator.

Friday Evening

To cap off a busy day we were treated to a delightful evening at Disney's Pleasure Island. A private reception and dinner at the Adventurers' Club was highlighted by excellent food and ongoing interaction with various Disney characters who are "regulars" at the club. This was followed by the opportunity to explore any or all of the many other clubs and entertainments offered on the Island.

Reception at the Adventurers' Club

Saturday Morning

Saturday morning began with Fritz Stawicke presenting the re-

search awards. Of the many excellent posters presented at the meeting, three were singled out for special recognition:

Technology Innovation: Robert G. Loeb, Tecumseh Fitch: *Laboratory Evaluation of an Auditory Display Designed to Enhance Intraoperative Monitoring.* An auditory display incorporating six variables (heart rate, blood pressure, respiratory rate, tidal volume, SpO_2, and $ETCO_2$) was developed and shown to be superior to traditional monitors in a laboratory setting.

Clinical Application of Technology: Hanna Viertio-Oja, et al.: *New Method to Determine Depth of Anesthesia From EEG Measurements.* A variety of EEG measures including Aspect BIS, fractal spectrum, Lempel-Ziv complexity, approximate Kolmogorov-Sinai entropy, and spectral entropy were examined as possible markers of hypnotic depth under anesthesia. Entropy appears to be a natural and robust characteristic of hypnotic depth with consistent behavior at all anesthetic depth levels. The transition between consciousness and unconsciousness appears to occur at a universal critical value of entropy.

STA 2000

Contributions of Technology to Education: Sem Lampotang, et. Al.: *Interactive Web-based Educational Simulation of an Anesthesia Machine.* The simulation has been implemented in MacroMedia Director and is available on the web at http://www.anest.ufl.edu/tds.

Session VI

**Keynote Speaker**

Dr. Vladimir Rakov - *Rocket Triggered Lightning Experiments.* Dr. Rakov described for us the technology and procedures used to study lightning at the International Center for Lightning Research and Testing (ICLRT) at Camp Blanding, Florida. Located near Gainesville, this area has the highest known incidence of lightning strikes in the USA.

Session VII

Annual STA Debate

Should BIS Be A Standard? Dr. Theodore Dushane argued for and Dr. Richard Epstein argued against the proposition. Both speakers agreed that awareness under anesthesia is a serious problem that might be reduced by BIS monitoring. However, Dr. Epstein convinced the audience (as evidenced by a post-debate show of hands) that the evidence supporting BIS's efficacy was insufficient to justify the legally weighty step of making it a standard.
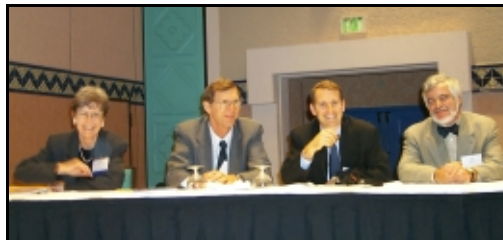
Photographs courtesy of Jim Philip

President's Message

(Continued from page 4)

Membership

I intentionally saved the most important topic for last. **We need NEW blood** to assure the future success of our society. STA's membership is, on balance, stagnant and aging – those of us who joined STA at the beginning as young turks are now becoming the old guard. Each STA member must actively recruit friends, colleagues, residents, non-medical faculty & students. The Membership Committee, under David Feinstein's (dfeinste@caregroup.harvard.edu) leadership, is initiating a number of new programs to promote STA, recruit new members, and improve the retention of old members. We believe that key target areas are junior academic faculty and individual industry members. When a new member joins, we are going to go to greater efforts to get them engaged in the society's activities. Members of the Board of Directors and other senior STA members will be asked to serve as mentors for new members.

Finally, I would like to close with a list of the three most important factors determining STA's long-term success:

1. Individual participation
2. Individual participation
3. Individual participation

… **Do it.**

Ξ

New Slate of Officers Elected

2000 Board of Directors

President	Matthew Weinger	Mweinger@ucsd.edu
President Elect	Dan Raemer	Raemer@harvardmedsim.org
Secretary	Charlotte Bell	Charlotte.bell@yale.edu
Treasurer	Butch Loeb	Rloeb@u.arizona.edu
At Large	Michael Jopling	Mjopling@columbus.rr.com
	Fritz Stawitcke	Stawitcke@hpl.hp.com
	Gordon Gibby	Gordon@anest4.anest.ufl.edu
Immediate Past President	Jim Philip	Jphilip@zeus.bwh.harvard.edu
STA Director	Beverlee Anderson	SocTecAnes@aol.com

2000 Committee Chairs

Membership Chair: David Feinstein	Dfeinste@caregroup.harvard.edu
Journal Liason: Jeff Feldman	Jeff.feldman@att.net
Standards Chair: Albert Perrino	76467.727@compuserve.com
Research Chair: Fritz Stawitcke	Stawitcke@hpl.hp.com
Webmaster: Keith Ruskin	Ruskin@gasnet.med.yale.edu
ASA Chair: Charlotte Bell	Charlotte.bell@yale.edu
Newsletter Editor: George Blike	George.t.blike@hitchcock.org
Outreach Chair: Dwayne Westenskow	Drw@cc.utah.edu
Research Chair: Fritz Stawitcke	Stawitcke@hpl.hp.com
Data Transfer: Gordon Gibby	Gordon@anest4.anest.ufl.edu
Computing in Anesthesia: Julian Goldman	Julian @acmeanesthesia.com
Simulators: Dan Raemer	Raemer@harvardmedsim.org
STA 2001 Chair: Jeff Feldman	Jeff.feldman@att.net

STA 2001: An Information Odyssey

The Evolving Role of Information Technology in Anesthesia Practice

The 11th annual meeting of the Society for Technology in Anesthesia will be held at the Scottsdale Arizona Doubletree hotel from January 10 through January 13, 2001. The meeting theme will focus on the evolving role of information technology in anesthesia practice.

Modern anesthesia practice is faced with many challenges that have the potential to be addressed by properly designed information systems. The anesthesia information systems of the past began as automated recordkeepers and are evolving to systems that will manage information throughout the perioperative period. Has anesthesia practice become so complex that it cannot be managed properly without an information system? Are the current anesthesia information systems capable of meeting our needs? At the STA 2001 meeting, clinicians, academicians and representatives of the anesthesia information system companies will meet to explore these and other questions about the potential of this technology to impact anesthesia practice including:

- How can we track and control the cost of care?

- Is it possible to develop information systems which can help to develop an evidence based anesthesia practice?

- Can information systems help with preoperative patient evaluation?

- Can we use information systems to report efforts to comply with HCFA regulations regarding concurrency and proper documentation?

- How can information systems help to predict the impact of capitation and other payment methods on financial viability?

- How do anesthesia information systems fit into the entire electronic medical record?

- Is this the correct time to purchase an anesthesia information system? How can one pay for these systems?

The meeting program will include multiple sessions on the current issues surrounding anesthesia information systems from their capabilities to the potential medicolegal implications of these systems. From wireless devices to data mining techniques, the potential impact of developing technologies will also be explored. Workshops will be designed to allow meeting attendees to search actual databases collected by existing anesthesia information systems to answer questions important to anesthesia practice. Other workshops will explore whether or not purchasing an anesthesia information system is the right choice for your practice.

In addition to the theme content, the meeting will include sessions devoted to the use of simulation in anesthesia practice. Simulator groups will be able to exchange ideas on educational and research activities. Workshops will be scheduled to update attendees on the current state of the art in anesthesia simulation. There will also be a scientific program for presentation of original work. A technology showcase will provide a forum for corporate supporters of STA to demonstrate their latest developments. Finally, enrichment trips to local technology companies will be planned along with an exciting social program.

Not long ago, the year 2001 had a futuristic aura and a promise of great technological advances. Information technologies are developing at a rapid pace and have the potential to revolutionize the medical practice of the future. For those of us in medical practice today, the path to information systems which solve the many challenges we face is not clear. Indeed, the development and impact of these systems will be an odyssey filled with questions that remain to be answered. Those who attend *STA 2001: An Information Odyssey* will better understand the future of this rapidly developing technology. Come join us for an exciting and informative meeting.

(Note: Look for more information about STA 2001: An Information Odyssey on the STA website, www.anestech. org, in the near future. Information can also be obtained from Society for Technology in Anesthesia, PMB 193, 2743 S. Veterans Parkway, Springfield, IL 62704)

Meetings Minder

2000

Anesthesia in the XXI Century
February 17-20, 2000
Miami Beach, FL

Topics in Anesthesia and Anesthesia Equipment
Mayo Clinic Jacksonville
February 18-20, 2000
Orlando, FL

Sixth America-Japan Anesthesia Congress
March 9-10, 2000
Honolulu, HI
Http://www.iars.org

IARS 74th Clinical and Scientific Congress
March 10-14, 2000
Honolulu, HI
Http://www.iars.org

Society of Cardiovascular Anesthesiologists
Fifth Annual Update on Cardiopulmonary Bypass
March 19-25, 2000
Breckenridge, CO
(804) 282-0084

Transesophageal Echocardiography Seminar
April 15, 2000
Ann Arbor, MI
(800) 800-0666

What's New in Anesthesia
April 27-30
San Antonio, TX
(800) 328-2308

Outcomes 2000:
The Key West Meeting
May 24-28, 2000
Key West, FL
Prachels@wfubmc.edu

SIVA Quebec 2000
June 3, 2000
Quebec City, Canada
Http://siva.org

12th World Congress of Anaesthesiologists
June 4-9, 2000
Montreal, Quebec, Canada
(514) 286-0855
Http://www.wca2000.com

The 4th World Multiconference on Systemics, Cybernetics
and Informatics
SCI'2000
Orlando, FL
July 23-26, 2000
http://www.iiis.org

International Ergonomics Association 15th Triennial
Congress in San Diego
July 30-August 4, 2000

Intraoperative Echocardiography in the 21st Century
September 14-15, 2000
Location pending
Tracie_Blodgett@Emory.org

6th Congress of Anesthesiology and Intensive Medicine
September 28—October 1, 2000
Kallithea-Halkidiki, Northern Greece
http://users.otenet.gr/~fkanak/foten5.htm

SIVA 9th Annual Meeting
October 13, 2000
San Francisco, CA
(614) 293-5188

ASA Annual Meeting
October 14-18, 2000
San Francisco, CA
Http://www.asahq.org

NYSSA 54th PGA
December 9-13, 2000
New York, NY
Http://www.nyssa-pga.org

Ξ

Volume 11, No. 1

Society for Technology in Anesthesia Coordinator:

Society for Technology In Anesthesia

USE THIS HANDY FORM TO CHANGE YOUR MEMBERSHIP INFORMATION ESPECIALLY ANY CHANGE IN ADDRESS FOR JOURNAL SUBSCRIPTION & EMAIL

2000 New and Renewal Membership Application

STA membership includes the newsletter, Interface, a subscription to the Journal of Clinical Monitoring and Computing plus a significant discount on the STA annual meeting registration.

Won't you join us today!

Please print information

Name: _____

Institution: _____

Address: _____

City/State/Zip: _____

Country: _____

Wk Phone: _____

FAX _____

E-Mail: _____

___ New   ___ Renewal   ___ Change of information only

____ Check $200 payable to STA

____ Credit Card $200 MC/VISA (circle one)

CC Number _____

Expiration Date _____