Commitment to Research

2007-2008 ANNUAL REPORT
The American Epilepsy Society (AES) is one of the oldest neurological professional organizations in the nation, with roots dating to 1936. The Society was founded as the American Branch of the International League Against Epilepsy (ILAE) in 1936 and formally adopted its current name in 1954.

The Society, which is the United States Chapter of the International League Against Epilepsy (ILAE), has grown from a small organization formed during a dinner meeting in Kansas City, Missouri in 1936 to a membership of approximately 3,000 people from almost 50 countries. Although the Society was initially a physician-oriented society, it now unites physicians, nurses, basic scientists, and many other healthcare professionals who are committed to improving the lives of people with epilepsy through research and education. The Society’s support of these endeavors occurs in a variety of forms, including AES-sponsored grant programs, research awards, publication of Epilepsy Currents, and the AES’s Annual Meeting.

It’s 3,000 plus members are clinicians, researchers investigating basic and clinical aspects of epilepsy, and other healthcare professionals interested in seizure disorders. Members represent both pediatric and adult aspects of epilepsy.

The Society is based in West Hartford, Connecticut, and holds an Annual Meeting that offers symposia, lectures, poster presentations and exhibitions. The Meeting attracts more than 4,000 professionals from around the world and offers excellent opportunities for networking and sharing of ideas.
Dennis Spencer, M.D., 2008 President

It is an honor and a privilege to have the opportunity to serve this vital professional organization. I’m proud to report that this year is turning out to be an exciting time in the history of AES. I’d like to highlight some of the projects the Society has taken on this year.

During the last few months, the SUDEP Task Force, an AES / Epilepsy Foundation working group, has completed its report on research priorities and what education and advocacy efforts are needed to better understand the disorder and prevent its occurrence. The report, which is available on the members-only section of the AES Web site, has been submitted for journal publication. As a follow-up to the report, the NIH will sponsor a workshop of experts in relevant disciplines to develop new avenues for future research and refine currently favored lines of investigation on SUDEP mechanisms.

The Practice Standards Task Force, working with AAN and NAEC, has analyzed results of its earlier survey on Epilepsy Monitoring Unit (EMU) common practices. The results will be reviewed during an EMU expert consensus symposium, as well as being used to design the practice management course at the Annual Meeting this December.

The revitalized Web Content Committee has launched a new navigation structure for the AES Web site and is in the process of updating and enhancing the online content. The committee is currently piloting a message board for members to facilitate communication among members and encourage the discussion of professional issues and special interest group topics.

The Access to Continuity of Supply Task Force continues to move forward addressing concerns over the potential differences in the effectiveness of anticonvulsant drug formulations. Discussions with the FDA and NIH on the need for multi-center research and the design of a protocol for research to validate present concerns have been ongoing. The committee is now pursuing the hope that a multi-center research project, perhaps jointly funded by government and the private sector, might soon become a reality.

Representatives of the AES Advocacy Committee recently met with representatives of a number of our sister organizations to discuss mutual advocacy goals, identify gaps in the epilepsy advocacy agenda, and achieve closer coordination of our efforts. Member support and involvement in advocating at both local and national levels will be key to the activities of this committee. An example of the need for a coordinated advocacy response arose recently when a FDA panel voted to place a suicide risk warning label on all past, present and future antiepileptic medications. The AES has organized a response that will be sent to the FDA, the media, and made available to our prescribing physicians and patients. This response will be endorsed by the national leadership of Neurology, Psychiatry, and the Epilepsy organizations.

The Clinical Research Task Force recently created to look into more clinical funding mechanisms, funding resources, and education on how to develop clinical research, is now a standing committee of the board. The committee is currently charged with identifying existing, as well as creating new mechanisms for training in and planning grants for patient-oriented outcomes. A special interest group session at the December meeting will focus on tips and strategies for writing competitive clinical research applications.

AES is a dynamic organization that continues to evolve along with the needs of its members and the changing environment in which we exist as a professional society. We are actively participating in the development of performance measures and standards in our field; engaged in supporting the long process necessary to obtain subspecialty accreditation and certification in epileptology; and maintaining AES’s established position as an exemplary ACCME accredited CME education provider. To enhance AES’s ability to continue providing the highest quality education, the board authorized the Council on Education to engage a half-time epilepsy content expert to serve staff as a Medical Content Specialist.

I anticipate more exciting developments this year and look forward to hearing of the accomplishments of these committees and task forces.
John W. Swann, Ph.D., 2007 President

It was a privilege serving as your president for 2007. The year began by focusing on the strategic plan that had been developed over the previous six months by the AES Board. The plan has five initiative areas: education, research, advocacy, performance measures, and revenue enhancement.

The pursuit of these initiatives and other AES projects in 2007 involved the work of 27 standing committees and 12 task force/ad hoc groups whose accomplishments are reviewed throughout this annual report. This brief review focuses on just a few highlights of our work during the year in the area of research.

Perhaps the most notable event, affecting both research and revenue development, was the merger in December of The Cesare Lombroso Trust for Epilepsy Research, a private charitable trust, with the William G. Lennox Fund overseen by AES. The AES is truly indebted to Dr. Cesare Lombroso for his generosity in supporting future epilepsy research and training programs. The funding resources of the new entity, now called the Lennox and Lombroso Trust for Epilepsy Research & Training, will be increased through an ongoing fund-raising program.

An important survey of research grantees from 1991 to 2007 was carried out by a subcommittee of the Research and Training Committee and clearly demonstrated the value of support from the AES and its research funding partners. The joint AES – Epilepsy Foundation assessment found that awardees published more than 500 epilepsy-related scientific reports. Importantly, 98 percent of respondents have remained in the epilepsy field.

The growth in financial support for epilepsy research is critical in the light of stagnating NIH research support in recent years. Advocacy to increase federal research funding included continuing our Society’s support of the Epilepsy Foundation’s Public Policy Institute in March and participation in the related congressional visits by some of our members. Many AES members have also signed on to EPALS, the new online advocacy tool whose first use in January was to send messages to the U.S. Congress advocating an increase in the NIH research budget.

Our advocacy with the U.S. Congress also included support for establishing Epilepsy Centers of Excellence in the VA system, including an increase in support for research on the prophylaxis and treatment of post-traumatic epilepsy.

AES played an important role in the NIH Conference “Curing Epilepsy 2007: Translating Discoveries into Therapies”, in which clinical and basic scientists from around the world came together to discuss scientific advances that have occurred since the first Curing Epilepsy Conference. A new set of NIH research benchmarks was developed as a direct outcome of this historic conference.

Finally, I wish to express my thanks and appreciation to all AES board, committee, task force and ad hoc group members for their hard work and support. I believe the AES has one of the most active, passionate and dedicated group of leaders and volunteers to be found anywhere.
I look forward every year to writing to you and informing you about all the exciting activities that are occurring within AES. This Annual Report contains a considerable amount of information and does an excellent job of sharing all that AES is doing.

One of AES’s key and very important initiatives is research. It has been observed that neuroscience is rapidly becoming the biological science of the 21st Century. If that is true – and it seems likely – there is a great future for research into the family of neurological syndromes we call epilepsy. Certainly, the prospect of major achievements in the management and prevention of seizures is today greater than ever.

The opportunities for AES to pursue its mission in the area of research promotion continue to grow along with the expansion and convergence of neuroscience, neurotechnology, and related disciplines. At the same time, the organization’s financial growth has remained static. Annual funding for research has ranged roughly between three-quarters of a million and one million dollars in recent years.

A funding strategy that totals $856,000 has been recommended by the Research and Training Committee for the next fiscal year. Some of this research funding is offset by outside sources, but the vast majority of it is funded by AES and the Lennox & Lombroso Trust for Epilepsy Research and Training. This newly merged trust fund combines the former Lennox Trust Fund with the generosity of Cesare Lombroso who turned over his successful Cesare Lombroso Trust Fund to AES. The proposed research support is spread across award mechanisms having different objectives. Each are highly important and worthy of substantially greater support.

Epilepsy must continue to compete for research talent against the more popular, highly publicized, and heavily supported diseases in which research funds are more readily available. Attracting promising young research talent also is especially needed today to fill the ranks of a growing number of senior epilepsy investigators nearing retirement.

Extraordinary advances in the tools now available to scientists and progress in the basic understanding of the brain over the past ten to fifteen years have widened the field and created an urgent need for research to translate what is learned in the laboratory into practical solutions in the clinic. Recent additions to the AES research strategy include award mechanisms that promote translational studies, foster closer research ties between basic and clinical investigators, and increase collaboration among researchers in diverse disciplines.

The epilepsy research arena is further broadened by a growing awareness that epilepsy is more than seizures and a condition typically associated with some degree of cognitive and psychological co-morbidity. The AES research agenda has grown accordingly. Among the newest awards are grants that provide seed support to encourage innovative, collaborative research in all disciplines, including clinical, social, basic science, and others.

More clinical investigators are needed as the gap between basic and clinical epilepsy research narrows, and research opportunities in the cognitive, psychological, and social spheres assumes increased important. A board-appointed Clinical Research Committee has recently been established to identify existing award mechanisms and develop new mechanisms for training in, and the planning of grants for, patient oriented outcome research.

The AES research program also includes targeted research mechanisms, often supported in partnership with one or more of the epilepsy consumer organizations. Recent awards have had a special population or life stage focus, such as women and the elderly, AES currently participates in a pediatric research partnership, a research area that has long been a focus for the society.

This expanding world of epilepsy science challenges AES in setting research priorities and in obtaining the funds needed to reach the society’s research program objectives. This occurs at a time when the organization is faced with declining revenue from contributions, largely from industry, a trend that tracks with what is happening with other medical societies of similar size and scope. Member dues and the excess in revenue from the annual meeting are also insufficient in producing the additional funds needed to meet the exciting research opportunities that now exist.
We know that what we have invested in research has been successful and fruitful. Throughout the Annual Report and particularly as part of Kevin Staley’s report on Research Funding and Awards it is clear how our funding has made a difference. Be sure to read the Report from the Funding Success Task Force. Think about what would not have happened if the researchers highlighted had not been funded.

Leadership is taking measures to see that the society’s research commitment keeps pace with this changing environment. AES costs have been trimmed without cutting member value. There will be a hard reappraisal of the research program to insure that the program is focused on goals of the highest priority and most productive award mechanisms. Efforts are also moving forward to develop new resources to fund research, including a special campaign to build up the new Lennox & Lombroso Trust for Epilepsy Research and Training. We hope that when you are asked to contribute that you will be responsive to our request. Every dollar will make a difference.

The challenge of securing research dollars will persist as long as the scientific opportunities in epilepsy are as abundant and exciting as they are likely to be into the foreseeable future. AES is up to the challenge and will remain a vital contributor to epilepsy research and an important participant in the world of neuroscience.

M. Suzanne A. Bess

2007 AES Board of Directors and Staff
The Membership Committee has two important purposes: In concert with the AES’s other marketing efforts, the Membership Committee attempts to promote and make membership in the AES attractive and valuable. Thus the membership roll will continue to appropriately expand. Secondly, the Membership Committee is charged with the responsibility to approve applications for new membership or changes in membership status.

Membership Volume and Category Changes
As a result of dramatic advancements in therapeutics, as well as diagnosis, the field of epilepsy has burgeoned and a larger variety of individuals have become members in the Society. From abroad, the AES is seen as the strongest and most active organization in the field, as reflected in both our foreign membership and attendance at the annual meeting. Corporations, especially in the pharmaceutical industry have found it valuable to include membership in the AES as part of their employees’ activities. The number of these ‘associate’ memberships has waxed and waned in response to corporate policies.

Despite the drop in direct corporate participation and some faltering of the American economy, the Society’s membership position remains strong. Between July 1, 2007 and June 30, 2008 we gained 298 new members, keeping the staff busy processing about six new applications per week. The increases in these other membership categories are shown in the graphs below, as are the breakdown of professional activities members have indicated as being predominant.

Retention of existing members continues to be very high — 91 percent, similar to previous
years — suggesting that people find AES membership valuable. Our total membership as of July 1, 2008 is 2,472.

At our annual Membership Committee meeting at the 2007 Annual Meeting, the committee prepared recommendations for amending Article III of the AES By-laws. These changes are summarized below:

- **Professionals in Epilepsy Care**
  Add: Professionals in Epilepsy Care member category

- **Senior Membership**
  Add: Corresponding members to member category who can apply for Senior status
  Add: requirement that a member requesting Senior status must have been either an Active or Corresponding member for at least 10 consecutive years

- **Corporate Membership**
  Change: Separate Corporate and Associate Membership: Associate members are those employed by a for-profit company
  Change: The member is the individual, not the company or corporation

After submission to the Board of Directors, they were approved by the membership in June 2008.

**Process for Application, Approval, and Renewal**

In an effort to streamline and simplify the process for membership changes and application, the Committee and staff worked with the AES Web design team to make it possible for individuals to a) ascertain the appropriate membership category to apply for, and b) fill in applications online if desired. A considerable amount of work was carried out to generate membership application forms, conversion to senior membership form, associate member exemption form, etc.

To help guide the applicant and his sponsor or training director, we have also included online sample statements of support from an Active Member or Training Director. To insure valid support letters, we still require hard copies of these letters; no electronic signatures are accepted. In order to properly and quickly vote on new applications, the members of the Membership Committee receive a much more informative spreadsheet outlining the candidates’ qualifications.

In previous years our timeline and procedure for dues invoicing led to confusion for some members and abuse of the discounts by others. This year we implemented a systematic, fair, and reasonable process for a) initial bills, b) reminder notices, c) warnings, d) terminations, and e) reinstatements. The AES administrative staff has radically improved its procedures in order to keep up with the new deadlines. The system is not meant to be punitive, but it appropriately encourages members to pay their dues in a timely fashion. This new system not only actively decreases lapsed memberships but should also improve the Society’s cash flow.

**Enhanced Demographic Information**

The Membership Committee felt a need, both from an academic standpoint as well as to help the Society’s lobbying and other endeavors, to better characterize the membership. Therefore, we have not only revised the membership categories as outlined above, but also enhanced the information collected from members and applicants.

Our application form now clearly distinguishes the applicant’s education, training, university attended, current position, and predominant activity.

Reorganization of the predominant activity includes:

- Advanced Practice Nursing / Nurse Clinician
- Clinical Research
- Electroencephalography / Neurophysiology
- Physician’s Assistant
- Psychiatry
- Psychology has been separated from Social Work.

To ascertain what attracted applicants to the AES, this question has been added to the application:

- How / Where did you hear about AES? (Up to 200 characters may be used to respond).

**Member Recruitment**

AES continues to benefit from a geographically diverse membership base with a wide range of talents and experience levels. Though our total numbers have been slightly reduced since last year’s change in Corporate Associates, the membership reflected in the attached graphs still reflect the strong foundation that keeps AES focused on the Society’s mission. Maintaining this foundation is critical; not only must we continue increasing our rolls with a broad-based community of professionals, we must provide good reason for those who do join to stay — hopefully through their retirement.

We have undertaken a member recruitment campaign with one simple item: a 11x17 glossy poster that will be sent to each AES member with the following request:

*Please post this in your workplace where it will be seen by colleagues, other professionals, students, and visitors.*

Although a modest expenditure, we believe that the placement of this visual image prominently in hospitals, clinics, offices, and other institutions will increase our exposure to those workers who are most likely to consider joining AES. Along with the convenience afforded by our dramatically improved Web site, we anticipate that this will translate into increased applications for membership.
The American Epilepsy Society closed the books on Fiscal Year 2007–2008 as of June 30, 2008. The information you see in this report is unaudited, but in the interest of providing our membership with up-to-date information, we are reporting our preliminary results to you now. An audited statement will be ready in November 2008 and will be available on the AES Web site at www.aesnet.org.

This report is a direct comparison of where we stood at the end of Fiscal Year 2007-2008 to where we stood at the end of Fiscal Year 2006-2007 and a look forward to Fiscal Year 2008-2009.

### Total Revenue

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### Total Expenses

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#### Overview of FY 2007–2008 Budget

**Accomplishments**

The vision for the 2007-2008 Fiscal Year budget reflected our mission of education and research; these were our biggest expenditures. Much of our research investments are generated from Annual Meeting revenue surplus, which demonstrates the seriousness of our commitment to our mission.

Expenses continue to rise in this weak economy while our traditional funding sources seem to be constricting. Annual Meeting sponsorship continues to trend down and traditional big exhibitors are purchasing smaller space. New exhibitors are starting small. As the industry reacts to many antiepileptic drugs going off patent and increased scrutiny into marketing practices, we continue to adapt. New sources of educational support are being researched and expenses are carefully reviewed.

#### Membership/Operations

- Dues held steady.
- There has been no increase in the cost of the *Epilepsia* subscriptions.
- Dues income is higher than last year due to earlier and more frequent invoicing. This resulted in more revenue earlier in the year and reduced subscription costs of non-renewing members.
- A management review was conducted that was not budgeted. It verified that the Society is well managed. Recommendations including more Board training and better communication will be implemented in the coming year.

#### Technology

- Annual Meeting symposia were added to the Web site.
- A ‘refresh’ and upgrade of the Web site was completed.
Communications/Public Relations

- Produced six issues of *Epilepsy Currents* and four issues of *AES News*.
- The periodic member e-blasts continued throughout the year.
- Several position statements were generated and published in response to issues in the media including Drug Substitution, Veterans with Post-Traumatic Epilepsy, and Suicidality with Antiepileptic Drugs.
- The Advocacy Committee actively partnered with the Epilepsy Foundation and the American Academy of Neurology on legislative alerts and the new E-Pals network.

Professional Development

- The audio and Web TeleConsult program titled Epilepsy 101: Getting Started provided education to 326 nurses and allied health professionals.
- The first Visiting Professor Series programs were offered in community hospitals.
- The inaugural issue of the *Epilepsy Case Series Newsletter* was finalized by the end of the fiscal year.

Annual Meeting

- Registration numbers hit a record of 4,114.
- We continue to provide daily breakfast, lunches and evening receptions, despite the increasing costs.
- A part-time Medical Content Specialist position was added to assist with CME program development.
- We continue to support the ACCME reaccreditation efforts which will be finalized in late 2008.

Research and Awards Program

- The Milken Family Foundation continues to support the Early Career Physician-Scientist Award program with seven $50,000 awards presented at the Annual Meeting.
- AES continues to directly fund three predoctoral and three postdoctoral fellowships.
- The Lenox Trust Fund provided one predoctoral this year.

- AES is committed to its involvement with other research funding organizations and will support collaborative efforts with these other organizations.
- The Young Investigator and Nurse Awards, which are selected from submitted abstracts, continued to be offered. These awards provide travel stipends.
- AES continued to completely support the Epilepsy Research Recognition Award program.

Future Outlook 2008-2009

As we enter our new budget year (July 1, 2008 – June 30, 2009) we will continue much of the good work that was started this past year. As always, AES will continue to listen to feedback from our members in developing new programs and services.

Over the next year, we will be unveiling new programs that will be supported by a sound and conservative budget. We are unwavering in our commitment to education and research in fact, the surplus from the annual meetings provides funds to support AES initiated projects and programs.
CORPORATE PARTNERS ACKNOWLEDGMENT

The American Epilepsy Society would like to recognize the Annual Meeting and year round support of the following corporate partners:

2007 Annual Meeting & Year Round Support

**BENEFACTOR LEVEL**
**($500,000 – $1,000,000)**

- **UCB Pharma, Inc.**
  Ad in Exhibitor Guide; Exhibit Hall Lunch & Lunch Tote; AET Symposium; New Attendee and Member Reception; Press Room; Pediatric State-of-the-Art Symposium; Scientific Exhibit; Exhibit Booth; Post-Doctoral Fellowship, Young Investigator Awards, *Epilepsy Currents* and Contribution to the William G. Lennox Research Trust Fund

- **Pfizer Inc.**
  Merritt-Putnam Symposium; Scientific Exhibit; *Epilepsy Currents*; Exhibit Booth; William G. Lennox Research Trust Fund; Regional Symposia 2 2007 and Visiting Professor Series 2008

**LEADERSHIP LEVEL**
**($250,000 – $499,999)**

- **GlaxoSmithKline Pharmaceuticals**
  Fundamentals Symposium: Pharmacology 101; Professionals in Epilepsy Care Symposium; Special Interest Groups; Scientific Exhibits; Exhibit Booth; Access to Continuity of Supply Project; and TeleConsults in Epilepsy Series

**SPONSOR LEVEL**
**($100,000 – $249,999)**

- **Ortho-McNeil Neurologics, Inc.**
  AES Meeting News; Abstracts on CD; Abstracts on www.AESnet.org; *Epilepsy Currents*; Exhibit Booth and Contribution to William G. Lennox Research Trust Fund

**SUPPORTER LEVEL**
**($50,000 – $99,999)**

- **Abbott Laboratories**
  Annual Course; Scientific Exhibit; and Exhibit Booth

- **Cyberonics**
  Annual Course and Exhibit Booth

- **Valeant Pharmaceuticals International**
  Fundamentals Symposium: Pharmacology 101; Scientific Exhibit and Exhibit Booth

**CONTRIBUTOR LEVEL**
**($25,000 – $49,999)**

- **Shire**
  Annual Meeting Badges and Lanyards; Bag Insert; Exhibit Booth and Contribution to the William G. Lennox Research Trust Fund

**ADVOCATE LEVEL**
**($10,000 – $24,999)**

- **Medtronic**
  Junior Investigators Awards

- **Ovation Pharmaceuticals, Inc.**
  Scientific Exhibit and Exhibit Booth

- **Questcor**
  Annual Meeting Support and Exhibit Booth

- **Bio-logic Systems Corp – A Natus Company**
  Exhibit Booth

- **Xitek-Excel Tech Ltd.**
  Exhibit Booth

- **Elekta**
  Exhibit Booth
The Annual Meeting of the American Epilepsy Society is designed as a forum for the exchange of ideas among professionals and brings together those engaged in the research and treatment of epilepsy. Meeting attendees welcome the opportunity to meet with exhibitors and learn how products and services can aid their research or treatment of epilepsy.

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<th>OTHER ANNUAL MEETING EXHIBITORS</th>
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**Attendance**

Our 61st Annual Meeting was held at the Pennsylvania Convention Center in Philadelphia, PA. Attendance was our highest ever with 4,114 people. This is a 6 percent increase over last year. Non-members made up 45 percent of attendees and residents; students and fellows made up 12 percent. Twenty-three individuals took advantage of the Developing Country rates which were instituted in 2006. There was a slight increase in two-day registrations.

Based on the registration forms, the discipline with the largest representation, 37 percent, was adult neurologists/epileptologists. Pediatric neurologists/epileptologists followed with 19 percent of registrations and basic scientists were the next largest group with 15 percent. Nursing professionals accounted for 5 percent. Neurosurgery, pharmacology, behavioral health, neuroimaging and EEG disciplines each made up about 3 percent. The remaining 11 percent were from other practice areas.

**Industry Support**

Commercial support in the form of exhibits, sponsorship, scientific exhibits and educational grant support continued to be a vital source of revenue for the AES 2007 Annual Meeting and year-round education. For the 2007 Annual Meeting, more than 70 companies contributed over $500,000 in exhibit fees. Additional support of over $1,000,000 was contributed by eleven of those companies through their approval of educational grants for AES Annual Meeting programming, as well as, exhibit related sponsorships and scientific exhibits. See the Corporate Support Partner report, which identifies and gives credit to the company contributions.

**Popular Topics**

The most popular symposium, with over 2,000 registered, was the annual Merritt Putnam Symposium on “Post-Traumatic Epilepsy – Treatable Epileptogenesis?” organized by Frances E. Jensen, M.D. Closely following with 1,900 registered was the annual Presidential Symposium titled “Found in Translation – New Targets for Therapies” which featured President John W. Swann, Ph.D. Other symposia attracting over 1,500 registrants were the Annual Course, “Decision Points in Epilepsy – Bedside to Bench”, organized by Elinor Ben-Menachem, M.D., Ph.D.; the annual Lennox Lecture featuring Thomas P. Sutula, M.D., Ph.D., speaking on “Activity Dependent Plasticity: A Powerful and Pervasive Influence on Epilepsy and Its Consequences”, and Plenary II “Temporal Lobe Epilepsy: Discrete Focus or Spectrum Disorder?” organized by Edward H. Bertram III, M.D.

A broad range of topics was offered.

- Epilepsy Comorbidities: Lennox and Lessons Learned – 5th Judith Hoyer Lecture in Epilepsy
- Generica Antiepileptic Drug Substitution: Sorting Out the Myth from the Science – Antiepileptic Therapies Symposium
- Epilepsy and the Immune System: Implications for Pathogenesis and Therapies – Hot Topics Symposium
- Investigators’ Workshops, Basic Science and Clinical
- Pharmacology 101 – Annual Fundamentals of Epilepsy Symposium
- Presurgical Evaluation of Epilepsy: Cost Effective Practice – Spanish Symposium
- Basic Principles of the Treatment of Frequent Psychiatric Comorbidities in Epilepsy: What a Non-Psychiatrist Should Know – Professionals in Epilepsy Care Symposia #1
- Unique Perspectives of Adolescents: Surviving the Teenage Years – Professionals in Epilepsy Care Symposia #2
- Strategic Approaches to Pediatric Epilepsy Surgery – Pediatric State-of-the-Art Symposium
- What is a Seizure?
- Subcortical Control of Cortical Excitability
- Practice Management Course
Special Interest Groups

The member-directed Special Interest Groups (SIGs) continue to expand and grow in popularity. The largest SIG had more than 400 registrations and the smallest one had 36. Thirty-six sessions were run over three days of the meeting. Topics discussed in these informal groups included: Malignant Epilepsy Syndromes in Infants; Effect of Epilepsy Surgery on Memory: Case Discussions; Theories of Seizure Generation; Preparing for Promotion; Analyzing Clinical MEG Data: Going Beyond ECD; Generic Antiepileptic Drugs: Is There a Problem?; Social Cognition in Epilepsy; Collaboration Between Academicians and Clinicians in Initiating Research Projects; How Can Epilepsy Affect Fertility in Men and Women?; How to Obtain NINDS Funding for Translational Research; Cognitive Impact of Antiepileptic Drug Pharmacotherapy; Dendrites; Health Literacy: Implications for Epilepsy, SUDEP: What is Needed to Solve the Enigma and Can Nurses Impact the Burden of Intractable Epilepsy?

Abstracts

A total of 1,081 abstract submissions were selected for presentation at this year’s meeting. That is actually slightly fewer than last year. Investigators’ posters were shown at two special poster sessions this year, allowing 46 posters to be featured. Three platform sessions focused on the areas of Translation and Genetics; Surgery and Imaging; and Clinical Epilepsy, AEDs, and Neurophysiology. A separate Pediatric Highlights platform session was again featured this year, immediately preceding the Pediatric State-of-the-Art Symposium. Each session featured 14 abstracts. Five general poster sessions enabled 993 authors to present their research. All accepted abstracts were published in an electronic supplement to Epilepsia.
The Council on Education oversees the development and implementation of all educational programming sponsored by the American Epilepsy Society. Activities are directed to both the AES member and non-member and includes neurologists, neurosurgeons, psychiatrists, and professionals in epilepsy care with a significant interest in the research, diagnosis and treatment of epilepsy, (e.g., nurses, social workers, research scientists, neuropsychologists, other referring specialists, and general practice physicians who provide care for patients with epilepsy, and others interested in the field of epilepsy).

The main role of the Council on Education (COE) is the strategic planning of all AES educational programming, ensuring that the CME Mission Statement is carried through, and the oversight and implementation of new educational initiatives. The COE also develops, reviews, and implements all policies with relation to CME activities and ensures that its activities meet the rules as set forth by the Accreditation Council for Continuing Medical Education (ACCME).

The Council ensures that these goals are followed when planning all educational activities. The Council on Education oversees two subgroups responsible for planning educational programs: Annual Meeting and Educational Development. The Annual Meeting Committee consists of the various components that develop programs presented at the Annual Meeting: Scientific Program which reviews and assigns poster and platform sessions, Annual Course, Investigators’ Workshops, Pediatric Content Committee, AET Symposium, Practice Management, Spanish, Presidential Symposium, and the Merritt-Putnam Symposium. The Educational Development Committee is responsible for developing new and innovative programming targeted to the general neurologist and non-AES member. The Council on Education undertook the following projects this year.

Mission Statement

This past year the Council on Education reviewed and updated its CME Mission Statement. In keeping with the ACCME updated criteria, the Mission Statement reflects our commitment to develop and present the highest quality educational programs that (1) transfer knowledge on the newest developments in epilepsy; (2) increase competence in physicians that treat patients with epilepsy; (3) improve physician practice by increasing utilization of new knowledge or optimal physician behaviors; (4) improve patient outcomes, quality and safety in the field of epilepsy. A new addition to the Mission Statement is a section entitled “Expected Results of the Program”. The Council on Education takes seriously its role in measuring the impact educational programs have on its constituents and outlines knowledge transfer, improvement in competence, performance-in-practice, and patient outcomes.

Educational Development Committee

Two new initiatives were begun this past year: Epilepsy Case Series Newsletter and the Visiting Professor Series. Both are supported with educational grants from commercial supporters and will be launched during the 2008–2009 Fiscal Year. An editorial board was established for the Epilepsy Case Series Newsletter which developed the topics. This will be published six times a year. The Visiting Professor series, developed by an Advisory Board will be set in 22 cities throughout the next year and will be held at community hospitals. Both programs are targeted to the non-epileptologist in an effort to deepen their understanding of treating epilepsy.
Report on
EPILEPSY CURRENTS
Robert Macdonald, M.D., Ph.D., Chief Editor, Basic Science
Susan Spencer, M.D., Chief Editor, Clinical Science

*Epilepsy Currents* enters its ninth year of publication this September as the official journal of the American Epilepsy Society and the epilepsy journal with the largest circulation. Each issue is divided into two main sections, Basic Science and Clinical Science. The bimonthly journal continues with its unique format of solicited reviews on selected topics by experts combined with commentaries on important published articles. These articles are submitted by the Contributing Editors and selected by the Senior Editors. The commentaries are written by the Contributing Editors, experts in the field, insuring insightful analysis.

Careful attention to production issues and collaboration with the publisher Blackwell Scientific has achieved revenue neutrality this Fiscal Year without compromising content or quality.

The two founding Chief Editors, Dr. Robert Macdonald (Basic Science) and Dr. Susan Spencer (Clinical Science) will be stepping down this year, having played invaluable roles in the evolution of *Epilepsy Currents* from its inception. Associate Editors, Dr. Michael Rogawski and Dr. Gregory Bergey will assume the respective Chief Editor positions in Basic and Clinical Science, respectively. Dr. Carl Stafstrom has been named the new Associate Editor for Basic Science and Dr. Jacqueline French has been named the new Clinical Associate Editor. Both Drs. French and Stafstrom served terms as Contributing Editors previously.
Nobody likes to do the same thing twice, so every explorer makes a map and every researcher keeps a notebook. Knowing where we have been makes it a lot easier to plan for the future.

If we want to optimize future epilepsy research, shouldn’t we know how successful our past efforts have been? The Research and Training Committee, under the leadership of Jaideep Kapur, Ph.D., decided to look to the past to understand which prior research initiatives have been successful, and which have not. Manisha Patel, Ph.D. led a committee charged with the specific question: “What has been the long-term outcome of AES-funded epilepsy research?” The answer to that question is provided elsewhere in the Annual Report. Suffice it to say here that the overall answer was what we had hoped – the vast majority of AES-funded researchers have gone on to successful NIH-funded careers in epilepsy research.

But just like any researcher who’s dusted off a lab book to sort out an old experiment, Dr. Patel’s committee found that examining the past isn’t as easy as it seems. The freshest, most recent data describes investigators who are still so young that their careers aren’t yet well established. The older data is incomplete and may be less relevant due to changes in the funding climate as well as the nature of the scientific questions addressed and the methods employed to answer them.

Nevertheless, the hard work of Dr. Patel’s committee has provided us with some important insights. Transitions are difficult – from training to an independent position, from clinic to laboratory or patient-based research, or from an established avenue of research to a newer, less-developed area. Providing funding for these transitions has been a consistent strength of the AES research program, and this strategy may underlie its enduring success.

The retrospective review of research funding argues strongly for an ongoing prospective analysis of the outcomes of our research initiatives. This data will provide our generous donors with a clearer picture of the impact of their gifts, and enable us to continue to enhance the focus of our targeted research programs.
RESEARCH FUNDING

Oversight provided by the Research & Training Committee and its subcommittees

Early Career Physician-Scientist Awards

Funded by the Milken Family Foundation as of January 2008. Presented during the 2007 Annual Meeting. This is a funding mechanism for physician-scientists who are embarking on academic careers and wish to develop outstanding epilepsy research programs. These awards are primarily for investigators whose research interests will potentially affect epilepsy patients in the near term. Applications from outside the U.S. are welcomed.

Jorge Burneo, M.D., M.S.P.H.
University of Western Ontario, London, ON
Mentor: Warren T. Blume, M.D., FRCP(C)
“Functional cortical organization in patients with epilepsy due to malformations of cortical development”

Nathalie Jette, M.D., M.Sc., FRCP(C)
University of Calgary, Calgary, AB
Mentor: Samuel Wiebe, M.D.
“Development of an appropriateness and necessity rating tool to identify patients with potentially resectable focal epilepsy”

Giridhar P. Kalamangalam, M.D.
University of Texas Health Science Center, Houston, TX
Mentor: Ponnada Narayana, Ph.D.
“Oxygen-enhanced functional magnetic resonance imaging in non-lesional medically refractory focal epilepsy”

Josef Parvizi, M.D., Ph.D.
Stanford University, Stanford, CA
Mentor: Robert Fisher, M.D., Ph.D.
“The neuroanatomy of seizure propagation”

Second Year Funding

Derek J. Chong, M.D., M.S.
Columbia University, New York, NY
Mentor: Frank Gilliam, M.D., MPH
“A randomized, placebo-controlled double-blind trial using p-glycoprotein inhibition as adjunct therapy in medically-refractory epilepsy”

Eliane Kobayashi, M.D., Ph.D.
Montreal Neurological Institute, McGill University, Montreal, QC
Mentor: Jean Gotman, Ph.D.
“Multimodal investigation of focal epilepsies: what can we see beyond the epileptogenic area?”

John Christopher Oakley, M.D., Ph.D.
University of Washington, Seattle, WA
Mentor: William Catteral, Ph.D.
“Novel pharmacotherapy in severe myoclonic epilepsy in infancy”

AES-funded Postdoctoral Fellowships

Funded for the 2007-2008 Academic Year, administered by the Epilepsy Foundation

Xiaoming Jin, Ph.D.
Stanford University School of Medicine, Stanford, CA
“Inhibitory synaptic connectivity in post-traumatic epileptogenesis”

Philip Andrew Williams, DVN, Ph.D.
Case Western Reserve University School of Medicine, Cleveland, IL
“Network functions of inner molecular layer neurons”

Wei Zhang, Ph.D.
Stanford University, Stanford, CA
“Do somatostatin-immunoreactive interneurons inhibit perforant path excitatory input to granule cells in dentate gyrus?”

Postdoctoral Fellowship Funded by UCB Pharma

Julia Annette Brill, Ph.D.
Stanford University, Stanford, CA
“Altered AMPA receptor mediated excitability in the microgyric rat cortex”

Postdoctoral Research & Training Fellowship for Clinicians Funded by The Grass Foundation/R.S. Morison Fellowship – Second Year

Douglas C. Maus, Ph.D.
University of Pennsylvania, Philadelphia, PA
“Quantitative correlation of high-frequency field oscillations to unit ensembles in human epilepsy”

AES Funded Predoctoral Fellowships

Hing Cheong Lee
University of Pennsylvania, Philadelphia, PA
“Phosphorylation of K+ - Cl co-transporter KCC2 regulates its cell surface stability in status epilepticus”
Amy Christine Buhr  
University of Iowa, Iowa City, IA  
“Gene discovery in autosomal recessive epilepsy”

Laura Ann Stenton  
University of Wisconsin, Madison, WI  
“Determinants of feed forward inhibition in the dentate gyrus”

- **William G. Lennox Predoctoral Fellowship**
  Doris D. Wang  
  University of California, San Francisco, CA  
  “Role of GABA signaling in circuitry formation in the developing cortex”

- **Research Initiative Fund**
  Funded by AES  
  Janice R. Naegele, Ph.D.  
  Wesleyan University, Middletown, CT  
  “Link between epileptogenesis and a brain-specific protein tyrosine phosphate”

- **Research Infrastructure Program**
  Funded by AES and the Epilepsy Foundation  
  Lawrence J. Hirch, M.D.  
  Columbia University, New York, NY  
  “Critical care EEG monitoring research consortium”
  Jorge Burneo, M.D., M.S.P.H. and Hector H. Garcia, M.D., Ph.D.  
  University of Western Ontario, London, ON and Universidad Peruana Cayetano Heredia, Lima, Peru  
  “Neurocysticercosis and Epilepsy Research Network”
AES Awards
Selected by the Research Recognition Awards Committee.
The Society recognizes members at the Annual Meeting.

RESEARCH RECOGNITION AWARDS
Given annually to active scientists and clinicians working in all aspects of epilepsy research, this program was designed to recognize professional excellence reflected in a distinguished history of research or important promise for the improved understanding, diagnosis and treatment of epilepsy.

Award for Basic Science
John Huguenard, Ph.D.

Award for Clinical Science
Ingrid E. Scheffer, M.B.B.S., Ph.D., FRACP

DISTINGUISHED ACHIEVEMENT AWARDS
Honors members for service and achievements

2007 J. Kiffin Penry Excellence in Epilepsy Care Award
Edward B. Bromfield, M.D.

2007 AES Service Award
Martha J. Morrell, M.D.

2007 William G. Lennox Award
Illo E. Leppik, M.D.
Over the past 18 years, AES, in conjunction with its funding partners, has supported 389 investigators through grants and fellowships. Our generous funding partners include the Epilepsy Foundation, the Milken Family Foundation, the Partnership for Pediatric Epilepsy Research and UCB Pharma. The Epilepsy Foundation administers the majority of these awards.

A survey of past grantees and fellows was recently conducted by an AES task force. Data was collected based on a questionnaire from grantees funded from 1991-2007 by mechanisms including research grants, pre- and postdoctoral fellowships and behavioral health sciences fellowships. The goal of the survey was to assess the impact of the funding support on long-term measures such as career development, subsequent NIH awards, patient care and commitment to epilepsy research. The results suggest an overwhelming impact of the funding support on all indices, particularly research productivity, career development and commitment to the field of epilepsy. Almost all respondents communicated tremendous gratitude and positive benefits from the funding. The respondents have collectively published more than 500 epilepsy-related articles and 98 percent of respondents have remained in the epilepsy field. Subsequent NIH funding, a major indicator of career development, was achieved by approximately 40 percent and 20 percent received RO1 awards from NIH to continue their epilepsy research. It should be noted that over half of those who responded received their funding within the last three years. Over 60 percent of respondents who received funding prior to 1999 are currently at or above the rank of Associate Professor.

Survey respondents were asked to identify improvements in patient care that have resulted from their funded research. Some good examples follow:

- There have been major improvements in the work with patients. Understanding of FDG-PET data in patients with epilepsy and depression has been better understood, as well as a role of some structures, such as hippocampus in severity of depression. Upon returning to native Croatia, I organized a first video/EEG unit for long-term monitoring and the hospital bought the first PET machine for diagnosing patients. Hrvoje Hecimovic, M.D., Ph.D. – Fellowship 2003/2004
- The Epilepsy Foundation’s support played an integral role in allowing us to develop our biophysical approach to investigate important questions in our research of inherited forms of epilepsy. We have been able to build off the work done while supported by the Epilepsy Foundation and hope to publish a study shortly based on this work. Sunita Misra, B.S. – Fellowship 2004/2005
- Our work has eliminated repeated Wada tests from our clinical practice at the Cleveland Clinic Foundation. In addition, it has questioned the Wada test as gold standard for memory lateralization and therefore facilitated research in less invasive techniques. Tobias Loddenkemper, M.D. – Young Investigator Award 2002
- The funds provided by the Partnership for Pediatric Epilepsy Research allowed us to initiate an innovative research project and resulted in a discovery that anticonvulsant lactams and succinimides inhibit the neuronal nicotinic acetylcholine receptor. Arcadius V. Krivoshein, PhD – Fellowship 2004/2005
- We are in the process of streamlining screening and assessment of behavioral and emotional difficulties in children with epilepsy. Epilepsy Foundation sponsorship of my study provided a strong foundation for my program of research in psychosocial adjustment to pediatric epilepsy. As a scientist-practitioner, I routinely use the information gleaned from my research to inform my clinical practice and vice versa. Janelle L. Wagner, Ph.D. – Fellowship 2004/2005
- The AES/Milken Family Foundation grant was integral in supporting my research which identified a new molecular mechanistic basis for epileptogenesis. Martin J. Gallagher M.D., Ph.D. – 2005 Early Career Physician-Scientist Award
- This research has led us to the development of an EEG system with carbon wire electrodes, which are safer and more comfortable for patients to wear than traditional silver/silver-chloride electrodes.
The research resulted in development of an EEG system with carbon wire electrodes and development of software for analyzing fMRI timecourse from epileptic patients. Michiro Negishi, Ph.D. – Fellowship 2004/2005

• The improvements have taken place more on a personal basis. From this grant, I have learned a lot about the impact of hormones on epilepsy. I have been able to apply this knowledge to my day-to-day practice. I have also given various talks on hormones and epilepsy to nurses, physicians and patients regionally and nationally, thus increasing awareness about hormones and epilepsy. Nathalie Jetté M.D., M.Sc., FRCPC – Fellowship 2003/2004

Many shared how the funding helped their career development which is one of the goals of funding young investigators:

• This education provided the cornerstone for my investigation into the mechanisms of seizure initiation and termination and I believe that this funding placed me in a propitious position to then apply for and receive an NINDS K08 Mentored Clinician Scientist Award. Audrey Yee, M.D.

• Provided monetary and psychological incentive at a critical juncture in my career. Made me feel a part of the wider effort to understand seizures and improve the lives of those suffering from epilepsy. Carl Stafstrom, M.D., Ph.D.

• The most critical benefit, it turns out in hindsight, was that the award came with specific funding for attendance at the AES meeting that year. Upon going to the meeting, I discovered that interacting with clinicians and clinician/scientists was a highly educational and productive experience which taught me not just about epilepsy research but neuroscience in general, and most people in attendance were highly committed to epilepsy research and cared quite deeply about making scientific progress in this area. To them, their research was not a cold, rational quest for knowledge. They took it personally. Strangers actually came up to me after the awards were announced at the banquet to tell me how we awardees were “the hope for the future”, and things like that. Mathew V. Jones, Ph.D.

Research grants specifically targeted toward newly independent faculty are a key component of funding support and appeared to have a major impact on the career development of junior investigators as acknowledged below:

• The AES research grant helped get my career started and was important in getting my first job in an academic department. Janet Stringer, M.D. Ph.D. – Research Grant recipient 1991

• Initiated my research career and provided the foundation for my application for NIH funding. John Stern, M.D. – Research Grant recipient 1998

• Receiving research funds and the Young Investigator Award from EF/AES has been absolutely instrumental to the development of my research program as an independent young investigator. Thanks to EF/AES, I was able to initiate a research program on the role of reactive glia in posttraumatic epileptogenesis. The research I conducted on this topic has resulted in several grants funded by NIH and by other private foundations, and in the development of a solid animal model of post-traumatic epileptogenesis which allows me to continue my research with the realistic hope to find a practical cure to post-traumatic epilepsy within 5-10 years. Raimondo D’Ambrosio, Ph.D. – Research Grant recipient 1999

• Funds from the Epilepsy Foundation allowed me to test and develop new research ideas and collect pilot data for my first NIH application. Most importantly, it encouraged me to embark on epilepsy research as an independent investigator. Manisha Patel, Ph.D. – Research Grant recipient, 1995 and 1996

Overall, the survey results suggest that the funding has a tremendous positive impact on developing new generations of epilepsy researchers and improving patient care.
The American Epilepsy Society/Epilepsy Foundation Task Force on Sudden Unexplained Death in Epilepsy (SUDEP) has completed its report and recommendations for better scientific understanding and prevention of the phenomenon.

The SUDEP Task Force was convened by the Society and the Epilepsy Foundation, with representation from CURE, in March 2007 to assess the state of knowledge about SUDEP, delineate approaches to discussing SUDEP with patients and their families, recommend research directions and potential preventive measures. Specific charges included: developing a position statement, design methods to educate both lay and professional audiences, and explore obtaining large-scale prospective studies. The task force was divided into a Scientific Work Group and an Education and Advocacy Work Group. The whole Task Force eventually assessed the recommendations from each Work Group to create the Task Force recommendations (see sidebar).

While there is a tremendous need for both basic and clinical research in SUDEP, the report acknowledges that studies at single research centers would have too few SUDEP cases to yield knowledge beyond that already known about the phenomenon. Therefore, several of the task force recommendations concern establishing and garnering support for a multi-center program of SUDEP research.

A barrier in SUDEP investigations, says the report, “is the low autopsy rate in SUDEP suspects and the incompleteness of autopsy information.” Elson L. So, M.D., who chairs the Task Force with Tess L. Sierzant, M.S., notes that, “A recent study of U.S. coroners and medical examiners showed that SUDEP was not consistently cited as the cause of death, even when criteria for the diagnosis were met.”

To address this problem, the Task Force recommends the development of uniform criteria for SUDEP determination, including protocols for complete autopsy examination, and an awareness campaign aimed at patients, families, coroners, and medical examiners on the need for complete autopsy examinations in suspected cases.

The challenge of educating the lay and medical communities about SUDEP is significant. At issue is determining methods preferred by lay persons in learning about SUDEP, the development of balanced, comprehensive information, and execution of a broad-scale campaign utilizing all appropriate media and educational venues to reach the lay and professional audience. The effort should involve both established epilepsy organizations or institutions and professional organizations that have wide interests in neurology/neuroscience and child/family healthcare.

SUDEP prevention efforts can be directed only against its reported risk factors, since the underlying pathologic mechanisms are unknown. A few factors are modifiable to potentially lower SUDEP risk, namely uncontrolled seizures, especially tonic-clonic seizures; long epilepsy duration; subtherapeutic AED levels; and number of AEDs used. Risk reduction under these circumstances rests largely in adherence to established principles in epilepsy treatment.

SUDEP is a delicate subject not easily broached with patients. The devastating nature of SUDEP, dearth of knowledge about its causes, and lack of definitive preventive measures may overwhelm or upset some patients and families. The Task Force recommendations also address if, when, what and how SUDEP should be discussed with patients and caregivers.

The report recommends convening of a multi-disciplinary workshop, including experts in sudden cardiac death, sudden infant death syndrome (SIDS), genetic disorders, and autonomic dysfunction, to refine current lines of research and to identify additional areas of
research in mechanisms underlying SUDEP. The workshop is scheduled for late 2008 and the report from this workshop will be published in early 2009.

The full Report of the American Epilepsy Society and the Epilepsy Foundation Joint Task Force on SUDEP (Sudden Unexplained Death in Epilepsy) is available on the AES Web site at www.aesnet.org.

Summary of 2007 Task Force Recommendations

• Convene a multidisciplinary workshop to refine currently identified lines of investigation and to identify additional areas of research into mechanisms underlying SUDEP.

• Perform a survey of patients and their families to identify effective means of education to enhance participation in SUDEP research, including autopsy examination.

• Conduct a campaign aimed at patients, caregivers, coroners and medical examiners on the need for complete autopsy examinations in SUDEP suspects.

• Secure infrastructure grants to fund a consortium of centers to conduct prospective clinical and basic science studies to identify preventable risk factors and mechanisms underlying SUDEP.

• Develop among centers in the consortium uniform criteria for SUDEP determination, including protocols for complete autopsy examination.

• Organize within the consortium sites where core functions such as the following reside: coordination of consortium activities, supervision of database or enrollment registry, monitoring protocol compliance, and tissue repository and distribution.

• Facilitate the research activities of individual clinical and basic science researchers who pursue hypothesis-driven investigations of SUDEP risk.
AES leadership played a prominent role in the landmark “Curing Epilepsy 2007: Translating Discoveries into Therapies” Conference held in March on the NIH campus in Bethesda, MD. The two-day scientific meeting was co-chaired by AES President John W. Swann, Ph.D. and First Vice-President Dennis D. Spencer, M.D. AES was also widely represented among the scientific session organizers, presenters and participants.

The event was organized by the National Institute for Neurological Disorders and Stroke (NINDS) in collaboration with AES and other professional and voluntary epilepsy organizations.

Chairs for the scientific sessions were Jeffrey L. Noebels, M.D., Ph.D. (Translating discoveries of epilepsy genes into cures), Frances E. Jensen, M.D. (Translating discoveries of epileptogenic mechanisms into cures), Amy Brooks-Kayal, M.D. (Beyond seizures: cognitive and psychological issues in epilepsy), and Arnold R. Kriegstein, M.D., Ph.D. and Dennis D. Spencer, M.D. (Emerging technologies of diagnostic materials and cellular and molecular therapeutics).

The 2007 conference was a follow-up to the historic White House initiated “Curing Epilepsy: Focus on the Future” Conference of 2000. The idea of a cure and not just treating symptoms represented a new way of thinking about epilepsy in 2000, leading to the theme of “no seizures, no side effects.” This year’s event was dominated by the changing concept of epilepsy as more than seizures and a condition that affects patients 24/7.

The conference evaluated progress toward achieving the research benchmarks from the first Curing Epilepsy event and launched a successful effort for their updating, including benchmarks on co-morbidities, a new area.

Conference sessions focused on the current state of knowledge from human and animal research of epileptogenesis (how epilepsy develops and progresses) and epileptogenicity (presence, location and severity of epileptic abnormalities), and from laboratory studies of neuronal epileptogenic mechanisms. The presentations also highlighted efforts of research teams now working to synthesize these findings and to advance the understanding, diagnosis and treatment of epilepsy through the application of micro- and nanotechnology, neurogenomics and other emerging technologies.

The 2007 Research Benchmarks

The first set of Research Benchmarks have led to better animal models, significant improvement in neuroimaging, neurogenomics, improved localization, and major advances in neurostimulation. Building upon these and other recent advances, the 2007 Research Benchmarks are grouped in three areas:

• Area I – Prevent epilepsy and its progression,
• Area II – Develop new therapeutic strategies and optimize current approaches to cure epilepsy, and
• Area III – Prevent, limit, and reverse the co-morbidities associated with epilepsy and its treatment.

Benchmark Area I includes the discovery of as yet unrecognized causes of epilepsy and the identification of underlying mechanisms of and biomarkers for epileptogenesis. It calls for the discovery of approaches to prevent epilepsy or its progression, and the testing of potential preventive strategies in animals and humans. Among long-term goals is the discovery of biological mechanisms that cause epilepsy and are common across different types of epilepsy.

Benchmark Area II focuses on curing epilepsy beginning with the identification of mechanisms of ictogenesis. The development of research tools — markers, animal models, and screening techniques — that facilitate the identification and validation of a cure are also essential. Research goals include the identification of factors and practices associated with best surgical outcomes and the development of new approaches — gene therapy, brain stimulation, cellular therapy, and pharmacotherapy — for targeted therapies.

Benchmark Area III adds co-morbidities to the research agenda. The long-term goal includes delineation of “the natural history of co-morbidities including the nature of the relationship between specific co-morbidities and the underlying cause of epilepsy, specific features of epilepsy (e.g., onset age, seizure frequency, interictal epileptiform abnormalities) and treatment (e.g., pharmacotherapy, surgery).”
The Area III Benchmarks include identification of the predictors and underlying mechanisms that contribute to co-morbidities, the search for optimal treatments for neuropsychiatric and cognitive co-morbidities, and for strategies to prevent or limit SUDEP, sleep disorders, and other adverse consequences. Effective methods for diagnosis, treatment and prevention of non-epileptic seizures (NES) are also to be sought.

Each of the Benchmark Areas will be monitored and reported upon by a designated group of Stewards under the overall Chair leadership of Daniel H. Lowenstein, M.D. Serving as co-chairs are Ray Dingledine, Ph.D. and Jerome Engel, M.D., Ph.D., (Benchmark Area I), Susan Spencer, M.D., (Benchmark Area II) and Anne Berg, Ph.D., and Amy Brooks-Kayal, M.D. (Benchmark Area III).


Left to right: Jeffrey L. Noebels, M.D., Ph.D.; Walter Koroshetz, Ph.D.; Amy Brooks-Kayal, M.D.; Story Landis, Ph.D.; Frances E. Jensen, M.D.; Dennis Spencer, M.D.; Marisha N. Patel, Ph.D.; and Gerald Fischbach, M.D.
Volunteer Acknowledgment

AES appreciates its volunteers, in particular those who take on the responsibility of chairing a committee or task force. Many thanks to our 2008 Committee Chairs.

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