Issue Highlights:

- From the Desk at NIH: Michael Twery, Ph.D.
- Standing Committee Updates
- Presidential Task Force Updates
- NSF Sleep in America Poll 2008 Results
- NSF Young Investigator Conference

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DEAR MEMBERS OF THE SLEEP RESEARCH SOCIETY (SRS):

As I write to you at this time of year, the weather is warming, the days lengthening and the dormancy of winter is being shed by new growth around me.

Similarly at this time of year, the growth of the Sleep Research Society is being felt. Each year at this time, the society prepares for its annual meeting, a time of science and socialization, of discovery and recognition of growth in knowledge, as regular an occurrence as the changing of the seasons.

Beneath the surface that our members see at this annual event, there is a thriving scientific organization, one that is growing to increase recognition of sleep research findings and to increase opportunities for advancement of our members.

This year has been particularly memorable for the growth of our organization. Let me recount some of the significant events behind the scenes.

An emphasis on research funding has been the cornerstone of SRS organizational activities this past year. In response to the goals of the SRS strategic plan, and under the guidance of Dr. Terri Weaver, the SRS Presidential task force tackled the job of defining mechanisms by which the SRS can benefit our members by promoting funding for sleep research at all levels and for increasing awareness of funding opportunities to members of the SRS. Along these lines, two important initiatives have been advanced. First, the SRS has now hired a full time staff person whose primary responsibilities will be research funding advocacy and increasing the awareness of sleep research funding among SRS members. I anticipate that members of the SRS will be represented strongly at the federal funding levels when opportunities to increase funding for sleep research become available. Expect to hear more in the years ahead as this work unfolds. Second, the SRS has also recognized its societal obligations to make available to the public information from sleep research that has implications for public health. The “SRS Presidential Task Force on Public Health”, headed by Allan Pack, M.D, Ph.D. has reviewed areas of sleep research that have direct implications for public health and will focus initially on an SRS public policy statement on the topic of “Drowsy Driving”. The SRS has devoted funding for the staffing and creation of this important public policy issue. Please look for this report to come out in the coming years.

This past spring, the SRS, under the direction of course co-chairs Thomas Kilduff, Ph.D. and Thomas Roth, Ph.D., produced the highly successful and “SOLD-OUT” course on “The development of sleep-promoting agents” held April 3-4, 2008 in New York City. The proceeds of this course were directed toward the Sleep Research Society Foundation, to be made available for the granting of awards for SRS members, including the J. Christian Gillin, M.D. and Elliott D. Weitzman, M.D. awards. The SRSF J. Christian Gillin, M.D. Research Grant is intended to support beginning investigators in sleep research for the purpose of gathering pilot data to be used for future grant applications. The SRSF Elliott D. Weitzman, M.D. Research Grant is intended for researchers to gather additional pilot data for NIH or other federal grants that are scored but not funded.

The Educational Programs Committee has continued its successful educational slide series on key findings in Sleep Research, increasing the availability of these slides by promoting single slide sets in addition to the complete series for those SRS members with more specialized interests. This committee has also successfully continued its “webinars”, educational events over the internet, to reach a broad audience in key topics of sleep research. Join Clifford Saper, MD, PhD, for “Hypothalamic regulation of sleep and circadian rhythms”, the second in the new Basics of Sleep Webinar series. This 60 minute online session addresses the neuronal systems that control sleep and wakefulness; the flip-flop switch model for wake-sleep state switching; the role of orexin neurons in regulating the wake-sleep switch; how the circadian signal from the suprachiasmatic nucleus acts on the wake-sleep switch;
and recent data indicating that under certain circumstances, a second circadian clock may be turned on that supercedes the suprachiasmatic nucleus, and can rapidly adjust wake-sleep cycles. This online session is set for Tuesday, April 29, 2008, at 12:00 p.m. CT.

Looking forward, the SLEEP meeting is a professional highlight for all members of the SRS. This year’s meeting promises the same quality educational and professional opportunities.

Our incoming president, Michael Vitiello, Ph.D., and the rest of the APSS Program Committee has been hard at work developing this year’s scientific program. This diverse scientific program features compelling and interesting scientific research that will undoubtedly influence our field. An esteemed member of the SRS, J. Allan Hobson, M.D., will present the keynote address “Sleep, Dreaming and Consciousness – A New Paradigm” at the plenary session on June 9, 2008. Other noted SRS members, including Charles Czeisler, Ph.D., M.D., Christopher Earley, M.D., Ph.D., David Gozal, M.D., Ronald Szymusiak, Ph.D., and Terri Weaver, Ph.D., R.N., are Invited Lectures at the meeting.

And of course, the highly visible annual Trainee Day, this year being coordinated by Jennifer Martin, Ph.D., the chair of the Training and Educational Activities Committee and by Tracy Rupp, Ph.D., this year’s Trainee Representative and Trainee Member-at-Large to the SRS Board of Directors, is always a highlight of the year, featuring distinguished members of the sleep research society and eager trainees, many of whom have their first real experience with our field through this event. Please join me in welcoming all of them to the field.

Now, more than ever, there are exciting opportunities for our members to become involved in the activities of the society and to benefit other members of the SRS.

I look forward to seeing everyone in Baltimore at the 2008 SLEEP annual meeting!

Eric A. Nofzinger, M.D.
President, SRS
Editor: Dr. Twery, you have been involved in sleep research for many years, yet your name may not be familiar to some of our readership. Can you tell membership a bit about your position at NIH and what your specific roles and responsibilities are?

MT: I joined the National Heart, Lung, and Blood Institute (NHLBI) Division of Lung Diseases in 1996 as a Health Scientist Administrator (HSA) working with grants related to sleep, circadian, and respiratory neurobiology. The HSA position at NIH combines many roles including scientific consultant, grant administrator, program officer, manager, and adviser to the Institute and applicants. The grant portfolio in this program covers the gamut of basic to clinical research, and NIH funding mechanisms from research and training to small business technology transfer. I have also served as the program or science officer for several multi-component projects including the ongoing Childhood Adenotonsillectomy Study (CHATs) clinical trial, the Sleep Heart Study (SHHS) of cardiovascular risks associated with sleep apnea, the Apnea Positive Pressure Long-term Efficacy Study (APPLES) clinical trail, the Specialized Centers of Research (SCOR) on sleep neurobiology, the Sleep Academic Award program, and a variety of special funding opportunity announcements that were aimed at elucidating the mechanisms that link sleep disorders and short sleep duration to the risk of cardiovascular disease and obesity. I briefly served as Acting Director for the National Center on Sleep Disorders Research (NCSDR) during 2001, and became the Director full time in January 2006 when NCSDR was designated a programmatic branch of the NHLBI Division of Lung Diseases. The NCSDR has a lead role in coordinating communication within the Trans-NIH Sleep Research Coordinating Committee, and the NCSDR Director serves as executive secretary for the NIH Sleep Disorders Research Advisory Board (SDRAB). The SDRAB is a nationally representative panel of researchers, medical professionals, and sleep disorder patients, NIH Institutes/Centers, and several other federal agencies that meets twice each year to advise NCSDR on areas of need for sleep research and community education.

Editor: In your opinion, how does the future look for sleep research? Are there areas of sleep science that you believe are not currently receiving deserved attention?

MT: Knowledge of sleep regulation and function is accumulating at an unprecedented rate. Findings in every dimension of the science from molecular and cellular to behavioral are contributing to the recognition of sleep and circadian biology as essential constitutive functions. Sleep and circadian researchers seem well-positioned to seek out collaborators in cross-cutting domains, and serve as leaders of future research that will translate the concepts of biological timing into a more sophisticated understanding of physiological systems, disease pathogenesis, and new therapeutic approaches. Studies are needed to define the molecular and genetic basis of individual susceptibility to sleep deprivation and the pathophysiological implications; the fundamental neurobiology and pathophysiology of insomnia; and the gene-environment interactions that couple biological timing to cardiopulmonary and vascular disease mechanisms, stroke, and cancer. The elucidation of sleep and circadian disease phenotypes in terms of genetic and molecular factors should improve the ability to subcategorize disease, predict outcomes, and develop preemptive and more effective therapies. Epidemiological studies are also needed to understand how untreated sleep disorders and sleep deprivation influence behavioral health-related risk factors such as physical activity, diet, psychosocial stress, family health, and mental health. Population-based randomized clinical trails are needed to demonstrate the efficacy of sleep and circadian disorders treatment on a wide-range of clinically-relevant disease outcomes, but the pilot intervention studies needed to inform the selection of outcomes and the estimates of effect size required for power calculations are generally lacking. Overall, there would seem to be an immense opportunity for sleep and circadian researchers in collaborative, multidisciplinary teams to propose novel studies and leverage existing data and resources.

Editor: What should SRS members know about competing for grants at the NIH?

MT: NIH support for sleep and circadian research this year (fiscal 2008) is estimated to be $189 million (http://www.nih.govnews/fundingresearchareas.htm). Generally speaking, the NIH budget for investigator-initiated sleep disorders research is a reflection of the number of competing applications. The most important factor influencing the consideration of these applications for funding is scientific merit ranking as established by an independent peer review panel. Sleep and circadian researchers competing in the regular pool of applications should consider the full breadth of potential review audiences available (www.csr.nih.gov) and request a panel that is most appropriate to their science and approach in the cover letter to their application. The request for a particular review panel should be carefully thought out, since requests to later change the study section assignment are difficult to justify. Applicants can also request primary assignment to a specific NIH Institution in the application cover letter. It is critical that applicants communicate with an appropriate sleep program representative at their preferred primary Institute well in advance of the planned application receipt date to determine whether the research framework of the project will be a
good fit with that Institute. Applicants can find a list of potential NIH sleep program staff contacts on the website listed below.

http://www.nhlbi.nih.gov/about/ncsdr/comm/comm2.htm

You can also join the NCSDR listserv (SleepRFA-L) to receive Email on selected Federal activities of potential interest to sleep, circadian, and ventilatory control researchers. Please note that the listserv will automatically delete subscribers whose Email address does not appear to be working. You should update your subscriber information as needed.

https://list.nih.gov/archives/sleeprfa-l.html

Please keep in mind that the NIH can only consider grant applications that are submitted, and that the standing of an application in the peer review process is a principal determinant of whether an application is competitively positioned for an award. I hope this is helpful.

Michael Twery, Ph.D.
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We recently discovered that some cells in the pedunculopontine nucleus (PPN), the cholinergic arm of the reticular activating system (RAS) involved in waking and REM sleep, and in the subcoeruleus nucleus (SubC), a descending target of the PPN involved in REM sleep, were electrically coupled [1,2]. We had previously reported the presence of dye coupling and spikelets in some PPN and SubC neurons, as well as in the parafascicular nucleus (PF), an ascending target of the PPN involved in thalamocortical oscillations. We established the presence of electrical coupling using patch-clamp recordings of pairs of neurons and blocking action potentials with tetrodotoxin (TTX) and fast synaptic transmission with excitatory amino acid and GABA receptor blockers. In these conditions, intracellular pulses delivered to one cell induced a response in the other cell and vice versa, suggesting the presence of gap junctions between these neurons (Figure 1). We also determined that the neuronal gap junction protein connexin 36 (Cx36) was present in these regions, and decreased in level along with the developmental decrease in REM sleep [1,2].

A landmark study recently showed that modafinil, an agent approved for use in treating excessive sleepiness in narcolepsy, sleepiness in obstructive sleep apnea, and for shift work sleep disorder, increased electrical coupling between cortical, reticular thalamic and inferior olive neurons [3]. We then showed that modafinil decreased input resistance in electrically coupled PPN and SubC neurons in the presence of TTX and fast synaptic blockers, an effect that could be reversed by the gap junction blockers mefloquine or carbenoxolone [2, Figure 1]. Modafinil and these blockers produced their effects without changing membrane potential or affecting other conductances [1,2,3], an important issue since mefloquine and carbenoxolone are thought to have a number of unspecific actions, although on differing mechanisms.

Several studies showed that while gross motor activity patterns appeared normal in the Cx36 knockout (KO) mouse, detailed analysis of motor patterns showed a 10-20 msec degradation in coordination [4], and a delay >20 msec in the optokinetic reflex [5]. These differences appear vital to survival. In terms of consciousness and sleep, two laboratories found that cortical gamma oscillations in vitro were impaired in Cx36 KO mice [6,7]. A later study from this lab on Cx36 KO mice showed that Cx36 gap junctions contributed to gamma oscillations [8], while others showed that gap junctions may play a role in learning and memory [9]. All of these studies taken together suggest that gap junctions confer an advantage in timing, probably due to their ability to promote coherence in brain rhythms for optimal performance. The unique ability of coupled cells to maintain synchrony across a wide range of membrane potentials [10] probably allows brain rhythms to persist for longer periods without waning.

What is the role of electrical coupling? We hypothesize that the role of such coupling may be to enhance ensemble rhythmic activity across populations of cells within each nucleus. While some individual neurons manifest intrinsic rhythmic firing properties, it is the coherence of activity across the population that would lead to the propagation of rhythms such as are involved in changes in arousal state, e.g. in the transition to waking or REM sleep. Such coherence may be provided by electrical coupling, and we are examining how such coupling is organized at the cellular level, how it is enhanced or reduced, how it interacts with known transmitter systems, and which cell types are involved in these processes. We propose that electrical coupling is not involved in generating oscillations in individual neurons, which appear to be due to intrinsic properties and neurochemically modulated interactions, rather, gap junctions promote ensemble activation of cell populations [11]. An audience clapping in synchrony is louder than one in which each member is clapping out of rhythm.

The implications for sleep-wake control are considerable. Most electrically coupled neurons appear to be GABAAergic, which exhibit high input resistance and can be induced to fire by minimal input. If electrical coupling is increased, input resistance is shunted and these cells decrease firing, thus disinhibiting their targets, presumably the mechanism by which the stimulant modafinil promotes alertness. Agents that block gap junctions include halothane, propofol, oleamide and anadamide, all of which promote sleep or anesthesia [reviewed in 11]. The gap junction blockers carbenoxolone and mefloquine are both somnogenic. One possibility arising from this research is that a mechanism behind anesthesia is gap junction blockade, especially in the RAS.

Clinically, disturbances in electrical coupling can be expected to have a wide range of effects beginning with a decrement in synchronization, especially of fast rhythms such as gamma oscillations, leading to decreased alertness, such as is present in narcolepsy and other conditions inducing daytime sleepiness. Upregulation of electrical coupling can be expected to lead to increased vigilance and increased REM sleep drive, such as is evident in schizophrenia, anxiety disorders, depression, and other arousal-related symptoms. In REM sleep behavior disorder, the atonia of REM sleep is absent, so that it would be interesting to determine if modafinil affects this disturbance. Similarly, restless legs syndrome may be modulated by this agent since it appears to smooth out motor dysregulation in Parkinson’s disease patients, presumably by affecting coupling in the inferior olive [3]. We recently found that modafinil may affect electrical coupling in spinal cord neurons since oral treatment normalized excessive reflexes induced by spinal cord transection, suggesting that this agent may useful for the treatment of hyperreflexia and spasticity [12].

Electrical coupling introduces another layer of control to the manifestation of sleep-wake cycles, and may represent the first major breakthrough in sleep research since the discovery of orexin ten years ago. Hopefully, this finding will generate an equal amount of attention due to its multiple implications for understanding, and avenues for novel therapeutic strategies for, a number of sleep, movement and psychiatric disorders.
Electrical coupling and responses of SubC and PPN neurons. A. Electrical coupling in the SubC. Top: Two SubC neurons that were electrotonically coupled were imaged with neurobiotin (Cy2) immunofluorescence. The scale bar is 50µm. Bottom: Dual voltage clamp recordings (Holding Potential=-50mV) of the above neurons were conducted in the presence of TTX (1 µM). Hyperpolarizing pulses (-60 mV) injected into one cell induced an outward current in the neighboring cell, and vice versa. Gray line represents the average of 15 sweeps. The coupling ratio was calculated by dividing the outward current induced in one cell by the negative current injected into the neighboring cell. The coupling ratio of cell 1 to cell 2 was 8.13 ± 0.59 %, and of cell 2 to cell 1 was 6.25 ± 0.38 %. B. Whole-cell patch-clamp recordings from a pair of electrically coupled PPN neurons under voltage clamp. The same protocol as in A was applied, except that hyperpolarizing pulses were from -60 mV to -110 mV of 500 ms duration. The coupling ratio of cell 1 to cell 2 was 3.98 ± 0.55%, and of cell 2 to cell 1 was 4.08 ± 0.55%. C. An example of a PPN cell whose input resistance was decreased by fast synaptic blockers (CAG = 6-cyano-7-nitro-quinoxaline-2, 3-dione [CNQX] 10 µM, (+)-2-amino-5-phosphopentanoic acid [APV] 10 µM and gabazine 10 µM), then decreased further by the superfusion of modafinil (MOD, 150 µM). A 500 ms hyperpolarization step (from -60 mV to -105 mV) followed by a 1000 ms ramp (-105 mV to -35 mV) was applied in order to test the change of input resistance (Rin) and reversal potential of activated current. A higher current was required to compensate for the voltage change in the presence of modafinil, indicating a decrease in Rin (top record in red compared to control in black and in fast synaptic blockers in green). Rin changes during 12 min recording are shown on the bottom. D. Cholinergic modulation of spontaneous spikelets, indicative of electrical coupling. Left: In the presence of fast synaptic blockers (CAG), non-selective cholinergic receptor agonist, carbocinol (CAR), induced 60 pA inward current in this PPN neuron with spontaneous oscillations (top, vertical bar 50 pA, horizontal bar 4 sec). Enlarged records from points (a) and (b) are shown below. Recording (a) showed spontaneous oscillations in the presence of CAG. Recording (b) demonstrated that CAR increased the frequency of oscillations. The box on the bottom right shows enlarged 1 sec record (b). Carbenoxolone, a gap junction blocker, completely blocked the oscillations (bottom). Blockade did not affect membrane potential. This suggested that the oscillations were modulated by electrical coupling. Scale bars for the enlarged records are vertical 10 pA and horizontal 500 ms. Top Right: Power spectrum histogram of the oscillations in (a) and (b). Each histogram was obtained from a 30 sec recording. The frequency of spontaneous oscillations was 3.5 Hz, which increased to 8 Hz following the application of CAR.
Acknowledgement

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Literature Cited


Edgar Garcia-Rill, Meijun Ye and David Heister,
Center for Translational Neuroscience,
University of Arkansas for Medical Sciences,
The activities of the Research Committee changed dramatically when the SRS Foundation introduced its highly successful small grants program. Our portfolio of responsibilities began 4 years ago with the introduction of the Gillin grants to support pilot studies by young faculty members and with the Weitzman grants to provide bridge funding for investigators whose research was well received by NIH study sections but fell short of a fundable level. This year we have also assumed responsibility for reviewing the new Takeda postdoctoral fellowship awards.

In all instances, we worked to draft eligibility criteria and a fair system of review. Applications are reviewed by 3 reviewers with expertise in the area and rankings are forwarded to the SRS Foundation for funding decisions.

The table below provides summary data on the applications.

<table>
<thead>
<tr>
<th>Year</th>
<th>Gillin Applicants</th>
<th>Gillin Funded</th>
<th>Weitzman Applicants</th>
<th>Weitzman Funded</th>
<th>Takeda Applicants</th>
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</table>

The other new activity on the part of the Committee was to collaborate with the Research Task Force to develop a questionnaire to learn our members’ experience in obtaining research funding from novel funding sources. In addition to funding from NIH, NSF, diverse sleep societies, and pharmaceutical industry, we learned that some sleep researchers have successfully obtained funding from Agency for Health Care Research and Quality, American Academy of Otolaryngology, American Fibromyalgia Syndrome Association (AFSA), American Geriatrics Society, Arthritis Foundation (Michigan Chapter), Centers for Disease Control/National Institute for Occupational Safety and Health, decode Genetics, Inc., Emmerling Fund, Georgian National Science Foundation (GNSF). At the annual meeting, we will consider next steps to analyze these data.

The SRS is passionately committed to advancing research in sleep. I would like to thank our committee members, our outside reviewers, and the SRS staff for their hard work to advance these worthy goals.

Joel E. Dimsdale M.D., Committee Chair

EVALUATING SRS-SUPPORTED TRAINEE PROGRAMS

A Brief History:

The Sleep Research Society has been deeply invested in and supportive of trainees and junior scientists for well over a decade. This support has been based, in part, on the desire to nurture and develop talented new investigators to become the future leaders of the field. A cornerstone of this support for the past 13 years has been the Trainee Symposium Series (TSS). The TSS is a day-long program held in conjunction with the annual Sleep/APSS conference geared towards trainees from undergraduates through post-doctoral fellows. The TSS has evolved over the years. In its current form, the TSS includes workshops and lectures by junior and senior sleep scientists on a variety of topics ranging from basic science to clinical application to career development. In recent years, attendance has exceeded 200 trainees per year. The SRS also supports a Trainee Travel Awards Program in which monetary support is provided to trainee members of the SRS to attend the TSS and the Sleep conference. The majority of these awards are given based upon the merit of scientific abstracts submitted by trainee SRS members for presentation at the Sleep meeting. These SRS programs are currently overseen by the board-appointed Trainee Education Advisory Committee (TEAC).

Anecdotal evidence suggests that these SRS sponsored programs have greatly benefited a number of sleep scientists, and the TSS is well-received by both trainees in attendance and faculty presenters; however, the TSS and travel awards programs have not been formally evaluated. In an effort to evaluate and improve these programs, TEAC initiated a formal program evaluation process at the 2007 Sleep meeting. With the support of the SRS Board of Directors and office staff, we have now gathered and aggregated the necessary information and will begin analysis of the data. This report describes the sources and methods used to gather information for this undertaking and to outline TEAC’s plans for analysis of the data that we have collected.

Gathering the Data:

The first step was to establish the feasibility of gathering information of interest from existing resources for individuals who have
benefited from the TSS and the Travel Awards programs. We began by obtaining lists of TSS and Travel Awards program participants from SRS databases and files. Additional information was gathered from past SRS Trainee Members-at-Large and past TEAC chairs. Complete lists of TSS attendees and travel award recipients were available for the years 2004-2007. Lists of individuals who received travel award funding from 2001-2003 were also available.

A total of 761 individuals attended the TSS one or more times during those years. For each of these 761 individuals, we sought to determine whether they remained active in the field of sleep research. We consider this our primary outcome of interest. A number of possible sources of information and metrics were considered, and then narrowed down to the following questions:

1. **Did the individual continue to participate in SRS-sponsored trainee activities?**
   - Measure: Number of years of attendance at the TSS program

2. **Did the individual receive SRS funding to attend the TSS program?**
   - Measure: Number and total value of travel awards received

3. **Did the individual continue to be active in sleep research by authoring/co-authoring abstracts presented at Sleep meetings?**
   - Measure: Total number of abstracts authored/co-authored from 2001-2007
   - Source: Sleep abstract books, 2001-2007

4. **Did the individual attend Sleep meetings?**
   - Measure: Total years of attendance at APSS/Sleep meetings
   - Source: SRS databases, 2003-2007

5. **Has the individual published research related to sleep?**
   - Measure: Total number of publications related to sleep
   - Source: Medline searches for each individual name, using the keyword 'sleep' for the years 2001-2007.

6. **Has the individual received NIH funding for sleep-related research?**
   - Measure: Number of individuals with NIH grants
   - Source: NIH CRISP database searches for each individual name, using the keyword 'sleep'

7. **Has the individual remained a member of the SRS?**
   - Measure: Number of individuals with current SRS membership
   - Source: SRS membership records for 2008

These data from multiple sources were recently compiled into a single database and we are in the process of tabulating the findings. At first glance, one can see the reach of the SRS-sponsored programs as hundreds of unique trainees were identified. Our initial results also suggest that a number of these trainees have remained active in the field, publishing manuscripts, obtaining NIH funding for sleep-related projects and continuing membership in the SRS making it possible to further explore these outcomes.

**Limitations and Caveats**

As with any post-hoc undertaking, this approach is not without shortcomings. First, not all data are available for all years. Second, only somewhat “coarse” measures of involvement in the field are available for some metrics; for example, we do not have information on research funding outside the NIH (e.g., non-US government agencies, foundations) and our publication search was limited to journals indexed on Medline. One critical concern is the lack of any real control or comparison group. It will therefore be impossible to evaluate the “success” of the programs; rather, we will only be able to identify areas of relative strengths and weaknesses within the existing programs. Despite these limitations, we feel that this effort is a positive step forward in evaluating the TSS and travel awards programs and learning how to enhance this experience for trainees in sleep research.

**Where Do We Go From Here?**

TEAC’s next step in this process will be to summarize the data that have been gathered and to share the results with SRS leadership and SRS members. Our plans include providing descriptive information related to each of the measures collected, but also exploring of the relationships among these variables. Our goals are to identify areas in which the existing programs are strong, and areas in which improvements are needed. Concurrent with this evaluation, we are exploring ways to enhance tracking of participants in SRS sponsored trainee activities so a more comprehensive analysis can be undertaken in future years.

We hope that the SRS membership will share our enthusiasm for this undertaking. We look forward to providing a summary of our findings in the near future and to taking a “scientific” approach to improving the quality of SRS sponsored activities for trainees. We hope that, with continued support, the field will continue to grow with inspired and creative new talent addressing the many unsolved questions in sleep research.

Philip R. Gehrman, PhD
Vice-Chair, Trainee Education Advisory Committee

Jennifer L. Martin, PhD
Chair, Trainee Education Advisory Committee

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Presidential Task Force Updates:

Public Health

The Sleep Research Society has formed a new committee—Sleep and Public Health Presidential Task Force. This Committee is Chaired by Dr. Allan Pack, MBChB, PhD, and its members are: Charles Czeisler, Jodi Mindell, Barbara Phillips and Kingman Strohl.

The goal of this committee is to develop white papers that can provide information for policy makers and for informing public debate. The Committee is not intended to engage in advocacy but rather provide a document summarizing current knowledge on a topic.

Presidential Task Force Updates:

Research Funding

Acting on one of the primary goals of SRS, promotion of research funding, SRS President Dr. Eric Nofzinger established the Presidential Task Force on Research Funding in October, 2007. Chaired by Dr. Terri Weaver, the Task Force was composed of SRS members Drs. Craig Heller, Michael Irwin, Daniel Lewin, Thomas Scammell, Douglas Teti, and Kenneth Wright, with Dr. David White representing the perspective of the sleep industry, and Dr. Susan Redline serving as Board liaison. The charge to the Task Force was to recommend to the SRS Board mechanisms by which the SRS could promote and disseminate information regarding funding for sleep research.

During its monthly teleconferences, the Task Force considered several specific strategies recommended by the Board as well as evaluated other possible initiatives. Concurrently, the SRS Research Committee conducted a survey to identify non-traditional sources of research funding. The results of this survey were also included as information for the Task Force’s deliberations. Given the value of the survey, an initial recommendation was that the survey should be expanded and executed again to obtain more information regarding potential funding sources.

The Task Force recommended the following priorities for consideration by the SRS Board. Although they are listed in order of priority, the first three were considered of equal importance. It was recommended that these top three recommendations could be initiated within the year, beginning with Recommendation #1.

Creation and maintenance or purchase of a database listing non-traditional research opportunities. The Task Force recommended the exploration of commercial databases housing information on potential funding sources that could be purchased. Additionally, it was recommended that when NIH or any other type of funding opportunity or request for proposals was announced, that SRS members would be informed via an email “proposa alert”.

Course on grantsmanship. There was considerable support among Task Force members for mechanisms to develop members’ grant writing skills. The general consensus of the Task Force was to offer a course on grant writing for the SLEEP 2009 meeting. The task force members did not want this to be considered part of the usual course offerings where the income generated from the course determined whether it would be offered in the future. They recognized that this course would meet the needs of a select audience, but that it was important to develop the skills of its members, especially junior investigators. Additionally, it was suggested that an annotated reading list of grant writing resources that may prove to be useful could be listed on the SRS webpage.

Advocacy Program. The Task Force firmly believed in the development of an advocacy program. They suggested the hiring of a full time staff person and the creation of an Advocacy Committee. Descriptions of the proposed advocacy staff position and Government Advocacy Program were developed by Mr. Jerome Barrett and favorably considered by the Task Force. One of the advocacy activities suggested by the Task Force was an Advocacy Day on Capitol Hill where SRS members would approach their congressional representatives regarding issues related to sleep research. This has been successfully used by other professional organizations such as the American Thoracic Society and American College of Chest Physicians. It was also recommended that an email advocacy alert system be established where members could send a prewritten letter to their congressman with a click of the mouse. This mechanism has been successfully used by other scientific organizations.

T31/T32 Development. To promote submission and funding of T31/32 applications, the Task Force recommended that an opportunity be created to bring together members who have obtained T31/T32 grants to share their expertise on how to prepare their proposals and execute their programs with those seeking such funding. This dialogue might occur at the annual meeting.

Membership on NIH Study Sections. To assure a thorough and balanced review of sleep-related proposals, the Task Force also suggests that SRS members serve on NIH Study Sections and that SRS could develop a list of names of individuals who could be recommended for appointment.

Terri E. Weaver, Ph.D.
University of Pennsylvania

The committee has identified a number of areas in current public policy where it would be of value to provide a current review of relevant information, with recommendations.

The first project that the Committee will undertake is related to drowsy driving, while the next project will be related to hours of service and shift-work.
**Centers for Medicare & Medicaid Services**

**NCD 240.4 CPAP Therapy for OSA: Implications for Sleep Research**

On March 13, 2008, the Centers for Medicare & Medicaid Services (CMS) instituted a new policy for CPAP Coverage which effectively approved the use of portable monitoring: national coverage determination (NCD) 240.4 continuous positive airway pressure (CPAP) therapy for obstructive sleep apnea (OSA).

The new NCD marks a departure from the previous policy. Over the past 15 months CMS conducted an extensive review of all available literature and data available on portable monitoring before arriving at its decision.

In December 2007 the American Academy of Otolaryngology – Head and Neck Surgery (AAO-HNS) requested CMS review NCD 240.4. According to the letter requesting the review, AAO-HNS contends evidence supports the unattended use of portable monitoring devices for the diagnosis of OSA, and cited its belief that an insufficient number of sleep centers existed to support patient demand.

In September 2007 the CMS convened its Medicare Evidence Development & Coverage Advisory Committee (MEDCAC) to review evidence, as well as consider the testimony of organizations and individuals in the sleep medicine. For a history of the CMS review of NCD 240.4, visit the American Academy of Sleep Medicine’s Web site, www.aasmnet.org/portablemonitoring. Equipped with this information, CMS released the draft NCD policy in December 2007 and the final NCD policy in March 2008.

The policy development does not end with the publication of the Final Rule by CMS. As many of you probably know national Medicare policy is implemented and managed by Local Medicare Carriers. Currently there are 10 regions in the country, each state falls within a given region. Local Medicare Carriers develop policies for implementation of the national policy and while they need to incorporate national policy they do have latitude to make a policy more restrictive the national policy. As of this writing the LCD policies have not been published. They will be published within the next 45 days and depending on your region the rules may end up being more restrictive. This is especially important for those research programs that also have a clinical component.

These policies have sweeping implications for clinical sleep medicine, and will also likely affect sleep researchers. Sleep researchers at academic sleep disorders centers will likely experience the greatest impact. Researchers who perform studies on the Medicare eligible patient population, regardless of location could also experience some changes.

Sleep disorders centers associated with academic institutions may begin using portable monitoring as a diagnostic modality for OSA for patients who are Medicare beneficiaries. The increase in portable studies will result in a decrease in revenue. Operating revenue generated by the center will likely decrease since the reimbursement rate for portable monitoring is $650.00 less than the rate for in-laboratory polysomnography, as well as other contributing factors. A decline in operating revenue from clinical practice, combined with the initial start up costs associated with portable monitoring, may decrease the amount of funding and support available for sleep medicine research.

Perhaps the greatest impact will be felt if funding entities revisit and revise their guidelines for approved testing, especially in sleep research that includes Medicare beneficiaries. These funding entities may require sleep studies to be performed with portable monitoring devices as opposed to a traditional in-laboratory polysomnography as portable monitoring may be considered more cost-effective for gathering diagnostic information from patients. Initially this scenario is most likely for studies funded by the National Institutes of Health (NIH) and other government entities that are currently looking for ways to pare proposed budgets for research projects in this climate of reduced and limited funding.

As time goes on, however, non-government related funding sources may follow suit by stipulating that portable monitoring will be the prescribed method. It goes without saying that there will be a corresponding decrease in grant support as well.

These are three scenarios that are likely to become reality for researchers, and more changes and challenges may arise as local coverage determination (LCD) policies, which affect Medicare regions and actually dictate reimbursement, are set. Sleep researchers should anticipate these realities and consider them when developing new research paradigms and studies, and seeking funding and support.

Further, researchers at academic institutions should note that they are not restricted from using portable monitoring devices for sleep-related studies.

The full NCD policy is available for download from the link referenced above and includes very basic information for sleep medicine researchers. I encourage any sleep researcher who currently performs in lab overnight sleep studies to become familiar with the new NCD 240.4. While it may not seem relevant today as the dust settles on the clinical side of sleep medicine it will no doubt kick up on the research side of the equation shortly.

If you have more questions about the effect of NCD 240.4 on sleep medicine research and its relationship with academic sleep medicine, contact the AASM at (708) 492-0930.

Jerry Barrett
Executive Director
Sleep Research Society
THE NATIONAL SLEEP FOUNDATION’S 2008 SLEEP IN AMERICA POLL – KEY FINDINGS

The National Sleep Foundation recently released the Summary of Findings for its 2008 Sleep in America Poll which focused on the sleep habits of working Americans in relation to hours worked and performance on the job. Essentially, Americans are not sleeping enough, are working long hours, taking work home with them and some are having trouble staying awake on the job and on the road.

The graphic below illustrates a day in the life of a “typical” American worker. On average, workers are spending 9 hours and 28 minutes at work each day and 13 percent of the sample reported working 60 or more hours a week. Respondents reported spending only 6 hours and 55 minutes in bed yet said they need 7 hours and 18 minutes of sleep to function at their best. This is also short of the 7-9 hours of sleep recommended by most sleep experts. Moreover, 32 percent report getting a ‘good night’s sleep’ a few days a month or less, with 5 percent reporting they never get a good night’s sleep.

Key Findings on Sleep Habits

Sixty-five percent of Americans report experiencing a sleep problem at least a few times each week, with nearly half (44%) of those saying they experience that sleep problem almost every night. A full 10 percent of respondents say they use a sleep aid of some sort - 7 percent use over-the-counter/store bought sleep aids; 3 percent use sleep medications prescribed by a doctor and 8 percent say they use alcohol - which they may perceive as a sleep aid - at least a few nights each week.

The Poll Task Force also designed questions to determine respondents who would be considered “at risk” for insomnia, restless legs syndrome (RLS), and obstructive sleep apnea (OSA). To be considered at risk for insomnia, respondents were classified based on two criteria. They had to respond that they either: a) had difficulty falling asleep; b) were awake a lot during the night; or c) woke up too early and could not get back to sleep at least a few nights a week; AND reported that sleepiness interferes with their daily activities at least a few days a week. The results found 11 percent of respondents “at risk” for insomnia, yet only 4 percent of respondents reported being told by a doctor that they have insomnia.

To be considered at risk for OSA, respondents must have reported that they snored at least a few nights a week in the past month and had a BMI of 30 or greater. Fourteen percent of respondents were designated “at risk” for RLS if they reported they experienced unpleasant feelings in their legs at night - with an urge to move when they lie down to sleep, at least a few nights a week in the past month - and that these feelings are worse at night. Eleven percent of respondents fell into this category, whereas only 3 percent had been diagnosed by a doctor.

Key Findings on Work Habits

Besides a more than 9 hour workday on average, 58 percent of workers are taking work home with them to complete in the evening. Of those taking their work home with them, 20 percent say they spend 10 or more additional hours each week, and 25 percent spend at least 7 additional hours each week, on job-related duties. Almost one-quarter (23%) of all respondents did job-related work in the hour before going to bed at least a few nights each week.

Sleepiness at Work and on the Road

The poll asked how sleepiness was affecting a worker’s job performance as well as performance on the road. Specifically, 29 percent of respondents said they fell asleep or became very sleepy at work in the past month, while 12 percent were late to work in the past month because of sleepiness.

Drowsy driving is a life threatening situation which causes thousands of fatalities on the road every year. This NSF poll found that 36 percent of respondents admitted to having nodded off or fallen asleep while driving and 32 percent reporting that they drive drowsy at least 1 to 2 times per month. For those who drive as part of their work, 26 percent reported driving drowsy during the workday.
few days a week. Twenty percent reported becoming bored at work and 16 percent found it difficult to concentrate at least a few days a week.

**Napping at Work**

Interestingly, some of today’s employers permit napping at work. More than one third of Americans report that their workplace permits napping during breaks at work, with 16 percent reporting that their employer even provides a place for them to nap. An additional 26 percent say they would nap on a break at work if their employer were to allow it.

**Spotlight on Shift Workers**

The number of shift workers in America has remained high over the past 20 years, and many in this category are sleeping against their natural circadian rhythm. Thirty percent of this group report that they only get a good night’s sleep a few night’s per month or less. A third (33%) of shift workers state that they sleep less than six hours per night on workdays, with 18 percent of this group reporting a doctor telling them that they have obstructive sleep apnea. Other sleep-related attributes for shift workers include:

- The majority of shift workers (82%) say that they just “accept it and keep going” when they experience daytime sleepiness;
- 67 percent report consuming caffeinated beverages to help cope with daytime sleepiness, consuming an average of 3.02 cups/cans per day;
- 49 percent report consuming foods high in sugar and carbohydrates when experiencing sleepiness, and
- 28 percent report the use of sleep aids;
- Shift workers report high rates of:
  - Drowsy driving, with nearly half (48%) reporting that they have driven drowsy at least once per month in the past year;
  - Napping, with 64 percent saying that they take one or more naps per month and 16 percent report napping at work;
  - Intimate relationships affected by sleepiness (25%);
  - Daytime sleepiness interfering with their daily activities (21%), and
  - Work injuries, with 19 percent saying that they have injured themselves or had an accident on the job in the past year.

The poll was independently developed by NSF Board Members and other experts in the field. The Task Force included: Co-chair: Thomas J. Balkin, PhD, Walter Reed Institute of Research; Co-chair: Gregory Belenky, MD, Washington State University; Christopher L. Drake, PhD, Henry Ford Hospital Sleep Disorders and Research Center; Roger R. Rosa, PhD, National Institute for Occupational Safety and Health/CDC; and Mark R. Rosekind, PhD, Alertness Solutions. The poll is a nationwide randomized telephone interview with 1,000 respondents. The data was weighted to reflect equal proportions of respondents by age based on the U.S. Census. The maximum sampling error of the data for the total sample of 1,000 interviews is plus or minus 3.1 percentage points at the 95% confidence level. However, the sampling error will vary depending on the sample size and the percentages being examined in the sample.

NSF released the poll findings as part of its 11th annual National Sleep Awareness Week® campaign, held March 3-9th. For more sleep tips, information on sleep disorders and a Summary of Findings for the 2008 *Sleep in America* poll, visit NSF’s Web site at www.sleepfoundation.org.

Michele Wagner, MPH  
Director, Education  
National Sleep Foundation  
Christopher L. Drake, Ph.D.  
Henry Ford Hospital
On March 3, 2008, the National Sleep Foundation (NSF) hosted its 8th Annual Awards Dinner: A Celebration of Sleep Leadership at the Marriott Wardman Park Hotel in Washington, DC. The event kicked off the first official day of NSF’s National Sleep Awareness Week® 2008 (March 3-9, 2008). Serving as the Master of Ceremonies, Woodie Kessel, MD, MPH, former Assistant Surgeon General of the U.S. Public Health Service, welcomed the guests and shared the video highlights package of this year’s Sleep in America poll which focused on the impact of sleepiness on daytime performance and in the workplace.

At the awards dinner, William C. Dement, MD, PhD, NSF’s Honorary Director, presented the Lifetime Achievement Award to Charles A. Czeisler, PhD, MD, FRCP of Harvard Medical School and Brigham and Women’s Hospital in Boston, Massachusetts for his dedication to excellence in sleep science, commitment to mentoring young investigators and advancement of sleep in public health policies. In his acceptance speech, Dr. Czeisler acknowledged the support of his wife Theresa Shanahan, MD and his children, and he also gave touching tributes to his father Tibor Czeisler, MD and his mentor William C. Dement, MD, PhD, both of whom encouraged him to enter the sleep field. In addition, Dr. Czeisler recognized his many dedicated researchers, colleagues and staff at Harvard’s Division of Sleep Medicine and Brigham and Women’s Hospital as well as the organizations and companies whose funding supported his many research projects.

As a result of Congressman Honda’s leadership in the House of Representatives during this past year, Congress acted to support the creation of a new sleep program at the Centers for Disease Control and Prevention. This program, the planning for which is already underway, will undertake surveillance research, develop educational materials for healthcare professionals and teachers, and create sleep-related public awareness programs. This is an historic achievement that will bring sleep issues into the national public health arena as well as to state health officials. Congressman Honda is an Honorary Director of NSF.

NSF presented the Research Leadership Award to philanthropist Paul G. Allen who launched the Allen Institute for Brain Science in 2003. Accepting on Mr. Allen’s behalf, Edward Lein, PhD, Director of Neuroscience at the Allen Institute, spoke about the Institute’s goal of performing innovative basic research on the brain and distributing its discoveries to researchers around the world. As the principal investigator of the Allen Institute Sleep Study, Dr. Lein explained the development of a comprehensive database of gene expression in the mouse brain for five different conditions of sleep and wakefulness. This unique dataset is intended to help sleep researchers advance understanding of sleep deprivation and the dynamic changes underlying sleep/wake cycles. These data, as with all Allen Institute projects, will constitute a free, publicly available resource in order about his work in Congress on promoting fatigue issues affecting long-distance truckers and flight attendants as well as championing other sleep-related issues on the Labor, Health and Human Services, and Education subcommittee. Congressman Honda spoke about his own struggles with sleep apnea and the benefits of proper diagnosis and treatment. Further, he commended NSF for continuing to raise awareness of sleep disorders and related issues to the public.
to help fuel innovation and discovery by countless researchers and organizations.

Both Cephalon, Inc. and Takeda Pharmaceuticals North America were recognized with the Corporate Leadership Award for their continued leadership in supporting many NSF programs and contributions to the sleep field. Cephalon’s Chairman and CEO Frank Baldino, Jr, PhD served as the first ever Event Chairman in 2001 and Takeda Pharmaceuticals has chaired the awards dinner multiple times.

In addition to Dr. Woodie Kessel and the evening’s honorees, other special guests included Wayne Giles, MD, MS, Director of Division of Adult and Community Health at the Centers for Disease Control and Prevention, Julie Seibt, PhD of the University of Pennsylvania and recipient of this year’s NSF Pickwick Postdoctoral Sleep Research Fellowship, and Jonathan Jun, MD of the Johns Hopkins University School of Medicine and recipient of the new ALA/NSF Pickwick Research Fellowship Award. The evening concluded with hilarious entertainment by The Capitol Steps, a true “Washington establishment” comedy troupe that put its unique satirical spin on mocking politicians from both parties.

The awards dinner, a key fundraiser for the Foundation, supports NSF’s programs and was attended by nearly 400 guests. Many individual contributors and corporate sponsors gave generously to NSF and helped make the awards dinner a terrific success. For more pictures from the dinner, please visit www.sleepfoundation.org/awardsdinner.

Inne Barber
Director of Development
National Sleep Foundation
The National Sleep Foundation and the Sleep Research Society held the first NSF-SRS Young Investigators Conference on March 3, 2008, in Washington, DC. The conference aims were to allow early-career scientists to share their research and recent scientific findings with other young investigators, to foster interaction and discussion among basic and clinical sleep researchers, and to increase participants’ and attendees’ understanding of issues in sleep research impacting public health.

Young investigators were invited to submit abstracts to be considered for the conference. From the over 100 submissions, 16 abstracts were selected for a 10-minute presentation at the Young Investigator Conference; 8 in the field of Basic research and 8 in the field of Clinical research. The following young-investigators presented their work in the field of Basic research; Sabra Abbott, Ugo Faraguna, Patrick Fuller, Erin Hanlon, Christopher Jung, Jorge Lopez, Hengyi Rao, and Tracy Rupp, and in the field of Clinical research; Ellemarije Altena, Renee Aronsohn, Jiu-Chiuan Chen, Kun Hu, Mark Kohler, Emma Larkin, Rebecca Robillard, and Frank Scheer. A five-minute question and answer session followed each presentation with questions from the panel of experts and conference attendees.

The evaluation panel judging the presentations was comprised of representatives from the National Sleep Foundation, Sleep Research Society, Centers for Disease Control, and the National Institutes of Health. The panel included Chiara Cirelli, MD, PhD, University of Wisconsin/Madison; Christopher Drake, PhD, Henry Ford Hospital Sleep Disorders and Research Center; Wayne Giles, Centers for Disease Control and Prevention; James Krueger, PhD, Washington State University; Michael Twery, PhD, National Heart, Lung and Blood Institute; and Michael Vitiello, University of Washington. Thank you to the judges for participating in the conference!

Following the afternoon of presentations, participants and conference attendees attended a reception and dinner. Darrel Drobnich, acting Chief Executive Officer of the National Sleep Foundation, welcomed the group and introduced the evening’s Keynote Presentation speaker, Wayne Giles, Director of the Division of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. Mr. Giles’ presentation, entitled, “Sleep and Public Health” emphasized the need for epidemiological data in addition to basic and clinical research, and the importance of considering research in the context of public health.

Awarded of the conference were announced following the Keynote. Winners of the competition were based on the judges’ evaluations and received a monetary price and a trip to visit the Centers for Disease Control in Atlanta, GA. The awardees were: Basic Research, First Place: Tracy Rupp, PhD, for her presentation entitled “Sleep Extension Improves Performance and Facilitates Task Acquisition During and Following 7 Nights of Subsequent Sleep Restriction;” Basic Research, Second Place: Christopher Jung, for his presentation entitled “The Influence of Sleep Deprivation on Energy Expenditure;” Clinical Research, First Place: Frank Scheer, for his presentation entitled “Circadian and Sleep/Wake Cycle Effects on Metabolic, Autonomic, and Endocrine Predictors of Cardiovascular Risk; Health Implications for Shift Workers;” and Clinical Research, Second Place: Emma Larkin, for her presentation entitled “Assessment of Genetic Effects on Sleep Apnea in Relationship to Body Mass Index by Linkage Analysis.” All sixteen speakers did a tremendous job and all were commended for their research and presentations.

The first NSF-SRS Young Investigators conference was a great success. Participants were honored to be given the opportunity to present among peers, senior scientists, and conference attendees. Thank you to the National Sleep Foundation and the Sleep Research Society for organizing the conference and for their continued support of young scientists. Also thank you to the Centers for Disease Control and to the support provided by Takeda Pharmaceuticals.
1. SRS Election Results Now Final!

Thank you to everyone that voted in the Sleep Research Society’s first ever online election. The following individuals were elected to the SRS Board of Directors, and will begin their terms at SLEEP 2008.

President-Elect: (1-year term) – Clifford Saper, MD, PhD
Secretary/Treasurer: (3-year term) – Ron Szymusiak, PhD
Board member-at-Large Position 1 (3-year term) – Thomas Scammell, MD
Board member-at-Large Position 2 (3-year term) – Terri Weaver, PhD, RN
Board member-at-Large Position 3 (3-year term) – Janet Mullington, PhD
Trainee Member at Large Elect – Sara Nowakowski, MS

2. Online Registration for the Trainee Symposia Series 2008

Register today for the 13th Annual Trainee Symposia Series, which will be held on Sunday, June 8, 2008, in conjunction with the SLEEP 2008 22nd Annual Meeting of the Associated Professional Sleep Societies!

Registration for the Trainee Symposia Series is now easier than ever. Registrants will rank workshop preferences for each session, and the SRS will do its best to accommodate your top choices. Workshops are available strictly on a first-come, first-serve basis, so be sure to register early to get your first choices! When a workshop reaches capacity, registration for that workshop will automatically close. Registration for Trainee Day has opened online at www.apss.org. Please note that you can only register for the Trainee Symposia Series at the time that you register and pay for the SLEEP 2008 22nd Annual Meeting of the Associated Professional Sleep Societies.

3. SRS Trainee Symposia Series Career Development Fair, Sunday, June 8th, 2008

The Career Development Fair, part of the SRS Trainee Symposia Series, offers trainees the opportunity to explore available positions in sleep research and sleep medicine and also provides those with open positions an ideal forum to recruit potential students and employees. Even if you do not currently have positions available, trainees will still benefit from learning more about your research programs and will become aware of future opportunities.

The Career Development Fair is June 8, 2008, from 4:00 – 5:00 p.m., immediately after the Trainee Symposia Series. Please note the Trainee Reception will run concurrent with the Career Development Fair, and the reception will continue until 6:00 p.m. The format of the Career Development Fair will include tables where representatives from participating institutions can display relevant publica-
tions, fliers, or posters, interact with the trainees, and even perform on-the-spot interviews.

If you would like to reserve a space at the Career Development Fair, please contact Tracy Rupp, the SRS trainee representative at tracy.rupp@amedd.army.mil. This year, space is limited and tables will be assigned on a first-come, first-served basis so you are encouraged to reserve a table as soon as possible.

The training of new investigators is one of the most significant goals of the Sleep Research Society, and the SRS looks forward to a successful event this year.

4. 6th Annual Discovering the Secrets of Sleep Fundraising Dinner

The 6th Annual Discovering the Secrets of Sleep Fundraising Dinner will be held on Sunday, June 8, at the Hyatt Regency Baltimore. The cocktail hour begins at 6:00pm and the dinner begins at 7:00pm. Drs. Alejandro Chediak and Eric Nofzinger will host the event with Dr. Mary Susan Esther serving as emcee.

This year’s event will be more casual than it has been in previous years and have a Maryland-theme. The reception will include the Black-Eyed Susan which is one of the most well-known drinks of Baltimore and Maryland. It is the official drink at Preakness, one of the triple crown horse races held at Pimlico Race Course in Baltimore, Maryland. The dinner will feature a crabcake and chicken combination entrée. For more information, log on to www.sleepmeeting.org.

5. NIH needs comment on a new computer-based system for research, condition, and disease categorization (RCDC)

The National Institutes of Health (NIH) Office of Portfolio Analysis and Strategic Initiatives (OPASI), in the Office of the Director, are building a new computer-based system for Research, Condition, and Disease Categorization (RCDC). The NIH will show the public the funded projects in each category at the end of the year. The NIH thinks that this will be a valuable tool to keep its research data consistent and to sort the more than 85,000 research projects NIH awards each year. In addition, Congress has mandated that NIH build such a databank that will show its spending.

The NIH will post the first RCDC reports from FY08 funded research in February 2009 as public information. This database will be beneficial in the sense that SRS members can look up whether a topic relevant to your field of research has been funded by the NIH in the past and if so, get details on the project and the funds.

The NIH will conduct a national information campaign to introduce and explain the new RCDC system to the public. The (NIH) need SRS members to provide their input to help the NIH plan for this campaign. They invite SRS members to review a portion of a
draft RCDC website. Because this is a static website in development, NIH would like SRS members feedback on the content, but not on its look or usability.

Please click on this link http://www.palladianpartners.com/rcdc which will take you to the draft RCDC website. After reading the information about RCDC on the website, please provide your comments through a five-minute questionnaire linked to the website.

6. NIH Public Access Policy: NIH seeks your input!

From March 31st to May 31st, 2008, NIH seeks information from the public, including all stakeholders, about the NIH Public Access Policy. Among other issues, the NIH is particularly interested in the following:

Do you have recommendations for alternative implementation approaches to those already reflected in the NIH Public Access Policy?

In light of the change in law that makes NIH’s public access policy mandatory, do you have recommendations for monitoring and ensuring compliance with the NIH Public Access Policy?

In addition to the information previously posted at http://publicaccess.nih.gov/communications.htm, what additional information, training, or communications related to the NIH Public Access Policy would be helpful to you?

Comments may be submitted and viewed at http://publicaccess.nih.gov/comments.htm.

7. NIH Offers New Research Portfolio On-Line Reporting Tool (RePORT)

The NIH Office of Extramural Research (OER) has posted its new Web site and on-line reporting tool, RePORT. This is a must-see Web site, offering a valuable tool for those searching for data and analyses of NIH research programs and activities, as well as links to CRISP, a glossary of reporting terminology, FAQs, and so much more. This new site will soon replace the current OER Award Information and Data Web site with a new look, more links to commonly searched information, and a variety of data searching tools.

8. The Behavioral Risk Factor Surveillance System

Last year, National Sleep Foundation (NSF) and the National Sleep Awareness Roundtable were successful in securing funding for sleep activities at the Centers for Disease Control and Prevention (CDC). Part of these funds will go to support sleep surveillance in the Behavioral Risk Factor Surveillance System, including one question in the core questionnaire and six questions in an optional module that will be used in 15 states.

9. Join SLEEPRA-L@LIST.NIH.GOV!

SLEEPRA-L@LIST.NIH.GOV is a listserv that generates NIH initiatives of potential interest to sleep and circadian researchers. To join SLEEPRA-L@LIST.NIH.GOV, contact Michael Twery, Ph.D. at twerym@NHLBI.NIH.GOV.
RESEARCH INTERESTS

The overall goal of our predominantly translational research program is to develop novel approaches for prevention and treatment of sleep and circadian rhythm based disorders. Our laboratory performs basic research using animal models, as well as basic human and patient-oriented research to study the interaction of sleep and circadian clock systems. Current research interests include: 1) Effects of aging and medical disorders on sleep and circadian systems in humans; 2) Role of circadian desynchronization on mental and physical health; 3) Efficacy and safety of a variety of behavioral and pharmacological approaches to improve sleep, circadian rhythms, mood and neuropsychological performance in young and older adults; 3) Characterization of circadian rhythm sleep disorders and their pathophysiology; 4) Effects of sleep deprivation on neural networks; 5) Mechanisms linking sleep and circadian timing with cardiovascular and metabolic disorders.

CURRENT RESEARCH

Current projects in our laboratory include: understanding and characterizing circadian disorders such as Advanced and Delayed Sleep Phase Syndrome; using exercise as an intervention to improve sleep, metabolic and circadian functioning in the elderly; examining the relationship between sleep and metabolic function in children, adolescents, young adults and older adults; the role of sleep and the circadian system on nocturnal asthma; sleep and health in under-served minorities; and sleep and daytime sleepiness in Parkinson’s disease.

Circadian Rhythms and Sleep in Delayed and Advanced Sleep Phase Syndrome.

The objective of this study is to determine the properties (phase, amplitude and period) of the circadian system, and define sleep/wake characteristics in subjects with delayed or advanced sleep phase syndrome.

Exercise as an intervention to improve sleep in elderly insomniacs

The major goals of this project are to determine whether exercise improves sleep, health, daytime performance, and overall quality of life in older adults with insomnia.

Sleep and Adiposity: A Prospective Twin Study

The goal of this study is to elucidate cause-and-effect relationships and mechanisms that link sleep duration with obesity in children, adolescents, and young adults using a large existent prospective twin cohort. The major pathways that link sleep duration and obesity will be examined, including autonomic & neuroendocrine function (heart rate variability, cortisol); inflammation (CRP); and appetite (leptin, ghrelin). We will also examine other relevant biomarkers already covered by the funded studies, including metabolism and inflammation.

Circadian rhythms and nocturnal asthma

This project will determine the effects of the endogenous circadian rhythm on lung function in subjects with nocturnal asthma (NA), non-NA, and healthy controls. Circadian rhythms of inflammation, the autonomic nervous system, and surrogates of central and peripheral endogenous circadian rhythms (melatonin and core clock gene cycling) will also be determined. We will determine if alterations in circadian rhythm (difference in phase or amplitude) exist in NA and whether these changes are related to the phenotype of NA. This proposal will reveal the pathophysiology of NA as it relates to the circadian system and allow future studies to develop novel therapies for NA that target the circadian system.
Study of Latinos

Latinos, who are becoming the largest minority group in the country, have a higher prevalence of obesity, diabetes, hypertension, and other risk factors. Participants will be followed for up to four years and will receive several screenings and medical exams focused on identifying the existence of and prevalence for cardiovascular disease, asthma, diabetes, stroke, and other conditions such as sleep disorders. The study takes into account the role of diet, physical activity, and other lifestyle factors, along with culture and socioeconomic status.

Effects of Bright Light Treatment on Daytime Sleepiness and Nocturnal Sleep in Patients with Parkinson’s Disease

This study aims to determine the efficacy, safety, and tolerability of bright light treatment in Parkinson’s Disease patients. Objective (PSG, actigraphy) and subjective (sleep logs and questionnaires) measures of sleep and daytime sleepiness will be collected throughout the baseline and intervention (bright light exposure) phases of the study.

Technical Capabilities

The Circadian Rhythm and Sleep Disorders Laboratory has facilities and equipment to conduct both human and animal sleep and circadian studies.

- Facilities include:
- 16 clinical sleep recording beds
- 5 rooms equipped with light control, polysomnographic sleep recording and blood sampling capabilities for humans
- 6 chambers to record sleep and circadian recordings in animals
- Power spectral analysis software
- Cognitive assessment battery
- Driving simulator
- Wrist activity/light monitoring
- Functional Magnetic Resonance Imaging (fMRI)
- Core body temperature recording (humans and animals)
- Bright light devices
- Neurogenetics core laboratory facility (tissue culture and human genetics)

Training Opportunities

The Circadian Rhythm and Sleep Research Group has a number of trainee opportunities available including: undergraduate, masters, doctoral, postdoctoral and fellowships in sleep medicine.

The group is affiliated with several NIH funded training grants including: Training Grant in Sleep Research (T32 HL07909-01); Mechanisms of Aging and Dementia (T32 AG20506); Neurobiology of Information Storage Training Program (T32 MH067564).

For information contact Dr. Phyllis Zee (p-zee@northwestern.edu) or Dr. Kathryn Reid (k-reid@northwestern.edu).

Representative Publications

Research Interests

Over the past 10 years, our group has been evaluating the developmental and health problems associated with sleep disorders in children. We were among the first to promulgate the idea that snoring, the mildest form of sleep disordered breathing, can affect learning, intelligence, memory and behavior as much as severe obstructive sleep apnea. We have recently completed a large longitudinal study that compared neurocognition and behavior in children with sleep disorders, both before and after surgical treatment, with well-matched healthy controls. Studies such as these typically lead directly to changes in the way childhood sleep disorders, which are very common, are managed clinically.

With significant national funding, we have also recently begun studies investigating the effects of conditions in children including primary snoring, sleep apnea, eczema, asthma and reflux in infancy. Outcome measures in these studies are a combination of (but are not limited to) cardiovascular health, autonomic tone, inflammatory markers, neuromotor function, relationships with obesity, family functioning, mental health and quality of life. The research team is therefore a multidisciplinary and collaborative one, including sleep physicians, sleep psychologists, ENT surgeons, physiologists, biomedical engineers, medical technologists, signal analysts, and epidemiologists. Our core team and collaborators are primarily associated with the University of Adelaide, University of South Australia and the Adelaide Women’s and Children’s Hospital.

Technical Capabilities

At the Adelaide Women’s and Children’s Hospital, we have access to the only dedicated facility in the state of South Australia equipped to conduct both clinical diagnostic and sleep research studies in infants, children and adolescents. At the last census in June 2007, the hospital was serving a metropolitan and rural population of 1,584,500.

Our sleep laboratory is a 3-bed unit equipped for standard pediatric polysomnography including oximetry, and end tidal or transcutaneous CO₂ monitoring. In addition, we have research equipment for specialized areas like:

- ambulatory blood pressure and ECG recording
- galvanic skin response
- actigraphy
- vascular endothelial function assessment
- body temperature regulation
- autonomic nervous system function
- neurocognitive and behavioural testing

Finally, co-location in the hospital provides our group with easy access to equipment located in collaborating departments for specimen collection, ultrasound and x-ray imaging, MRI, audiological testing and hematology.

Training Opportunities

Our group can offer a range of research trainee opportunities for postdoctoral fellows, physicians in training, PhD (graduate)
students, Masters students, and undergraduate students. Any discipline broadly related to sleep can be catered for—we are currently undertaking projects relevant to physiology, psychology, cardiology, pulmonary medicine, gastroenterology, public health and biomedical engineering, for example. Enquiries can also be made if positions for sleep technologists and research assistants are sought.

SELECTED PUBLICATIONS


The Sleep Research Society welcomes members who recently joined the organization. Our membership continues to grow — help us strengthen the impact of the profession by encouraging your colleagues to join.

Information regarding membership can be found on the Society Web site (www.sleepresearchsociety.org).

### Regular Members:

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