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ISSUE HIGHLIGHTS

Sleep Research Highlight: Weight Loss Treatment and Obstructive Sleep Apnea

Summary of NIH Meetings

From the Desk at NIH: Sleep and Circadian Research at the NIDDK
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June 1-5, 2013 | Baltimore Convention Center

SLEEP 2013 Offers Sessions for Everyone!

- Keynote Addresses from Gary H. Gibbons, MD, Director of the National Heart, Lung, and Blood Institute; and Thomas Roth, PhD, Director of the Sleep Disorders and Research Center at Henry Ford Health System
- Brown Bag Report: Challenging Cases for the Sleep Clinician Sessions
- Patient-related and Business-related Clinical Workshops
- Unopposed Poster Viewing Time
- Updated Postgraduate Courses including State of the Art for the Sleep Clinician, Trends in Sleep Medicine Practice and Gadgets and Gizmos
- Meet the Professors and Lunch Debates
- Symposia, Bench to Bedside, Invited Lecturers, Discussion Groups and More!

Registration Opens January 14, 2013 | SRS Members Save by Registering Early!

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27th Annual Meeting of the Associated Professional Sleep Societies, LLC
Dear Colleagues,

As we head into the New Year I pause to reflect on all of the work our society volunteers have invested in the SRS to ensure our organization remains vibrant and strong. My thanks go out to members and volunteers who continually contribute their time and talent to advance our field of research.

The past several months have been a busy time for the SRS. We continue to press forward with our high-priority initiatives to keep sleep and circadian research “on the radar” at the NIH. We have also been engaging members of Congress to demonstrate the importance of sleep and circadian research on our overall understanding of human health. The SRS has been working with the American Academy of Sleep Medicine on a number of initiatives as described later in this message.

NIH Activities

In late October eight members of the SRS and two members of the AASM engaged in a series of meetings with NIH Institute & Center Directors and program officers. Overall, the SRS and the AASM received positive receptions at each of the ten Institutes and Centers we visited. It is becoming apparent over time that regularly meeting with NIH officials to discuss new developments in our field as well as each of the Institutes & Centers’ interests in sleep and circadian research is raising awareness of the value of the science in our field and how it cuts across many other areas of biomedical research. A more detailed summary of the visits is included in this issue of the Bulletin.

Following the meetings at NIH in late October, the SRS and AASM had an opportunity to meet with Gary Gibbons, MD, the new Director of the National Heart, Lung and Blood Institute (NHLBI) on November 15. The meeting with Dr. Gibbons was extremely positive. He is interested in sleep and circadian disorders research, understands the challenges for our field moving forward, and promises to work with the SRS and AASM to continue implementation of the new NIH Sleep Disorders Research Plan.

In an effort to facilitate implementation of the NIH Sleep Disorders Research Plan, the SRS and AASM will jointly host a Workshop on February 1 in Bethesda, Maryland titled, “Sleep and Circadian Research: Identification of Transformative Scientific Questions and Addressing Barriers to Progress.” Members of the sleep and circadian research community will join NIH programs staff to identify and discuss a series of transformative questions for our field and discuss ways to advance sleep and circadian science. Ultimately, a Joint SRS-AASM task force will develop a whitepaper based upon the outcomes from this workshop with the goal of using it as a partial roadmap for future research initiatives in the field.

Congressional Initiatives

The SRS continues to meet with members of Congress to educate them on the link between sleep and human health. Over the past two years the SRS has had success in getting language into appropriations bills related to sleep research and the implementation of the NIH Sleep Disorders Research Plan. The SRS will continue to advocate for sleep and circadian research in the coming year. Additional information about specific activities will be communicated to members in the next few months.

Nominations Process

In response to feedback regarding the process for nominating members to run for the Board of Directors, Officers, and Section heads, the SRS Board of Directors has expanded the Nominating Committee. The committee was previously made up of the President, President-Elect, Immediate Past President and the Secretary/Treasurer. The new committee will keep the previous members and include two Section Heads. The Section Heads that participate in the Nominating Committee will rotate based upon the year. In odd-numbered years the Heads of the Circadian Rhythms Section and the Behavioral Research Sections will serve on the nominating committee. In even-numbered years, the Heads of the Basic Research Section and the Sleep Disorders Research Sections will serve on the nominating committee. This change will provide a greater role for Section Heads to help shape the future leadership of the SRS.

On the topic of nominations, it is not too late to place your name in nomination for the SRS Board of Directors. The deadline for nominations is January 4, 2013. More information can be found by clicking here.

SLEEP 2013

Remember to mark your calendars for SLEEP 2013, June 1-5 in Baltimore, Maryland. Based upon the session and abstract submissions, SLEEP 2013 will have an abundance of outstanding science on the program. The SRS Educational Programs Committee will once again be hosting a “Basics of Sleep” Post-Graduate Course at SLEEP 2013. This course supports the SRS mission of educating individuals in our field and is a great way to convey basic science to more clinically-oriented sleep professionals.

As part of the SLEEP 2013 meeting, the SRS will be hosting the 18th Annual Trainee Symposia Series. This year the TSS will have an ‘omics’ of sleep theme with a series of workshops specifically on ‘omics’ topics in order to expose trainees to emerging science in our field. In keeping with the ‘omics’ theme, the TSS Keynote Speaker will be Eric Green, MD, PhD, Director of the National Human Genome Research Institute of the National Institutes of Health. We thank Dr. Green for agreeing to speak with the next generation of sleep and circadian investigators. Trainees who anticipate submitting an application for a NIH F or K award in the next 18 months are encouraged to attend the 4-hour trainee...
grant writing workshop that will be held on Saturday, June 1 prior to the kick-off of the TSS.

**Looking Ahead**
As we enter 2013 the SRS Board of Directors will begin a process of re-examining priorities in the organization to ensure that services and activities that are of high-impact or are highly valued by members continue to be the focus of the organization while scaling back or eliminating items that are not broadly used or have little impact on members and the field of sleep and circadian research. As always, your input is valued as this process progresses. Feel free to send suggestions on any way the SRS can improve services and activities to ncekosh@srsnet.org.

As I close this edition of the President’s Message, I would like to take this opportunity to thank all SRS members for your continued commitment to our organization. Despite trying times over the past few years with tight research budgets and economic uncertainty, you have remained committed to our organization through your work and your membership. This commitment has allowed us to move forward as a field and will help keep us strong as we move into 2013 and beyond.

Sincerely,

Ron Szymusiak, PhD
President
By Helen J. Burgess, PhD

Welcome to the winter issue of the Sleep Research Society’s Bulletin. As we look back on 2012, we acknowledge the hard work and important achievements of our Society’s committee members. In this issue we have reports from the Membership and Communications committee which has continued to develop innovative strategies to increase membership in our Society. There is also a summary of the SRS visits to NIH which have continued the essential dialogue with NIH leadership. This issue also includes the yearly report from our Secretary/Treasurer detailing the improved financial status of our Society, as well as reports from the Circadian Rhythms and Sleep and Behavior research sections. We also look back on a recent Epigenetics meeting, Sleep Research Network activity and consider recent research on the interaction between weight loss and obstructive sleep apnea. As in each issue of the Bulletin, we highlight the research and training opportunities available at a particular domestic and an international sleep research laboratory. New to this issue is a profile of two recent recipients of Career Development K awards – these profiles follow from an excellent suggestion by members of the Membership and Communications Committee to profile Early Stage Investigators in our field in every issue of the Bulletin.

We also take a look forward to exciting events planned for 2013. The Trainee Corner covers many of the plans for the Trainee Symposium Series to be held during our Society’s annual SLEEP meeting in Baltimore June 1-5, 2013. There is also the latest news from the desk at NIH (this time from the National Institute of Diabetes and Digestive and Kidney Diseases, NIDDK), an update on news from Washington from the SRS lobbyist and a useful piece on how LinkedIn can be used to strengthen your professional networks. A new Gordon Research Conference on Sleep Regulation and Function is also previewed.

As I sign off for 2012, I would again like to thank Nick Cekosh, the SRS Coordinator, for his guidance and help in putting together this issue of the Bulletin, and of course I also give thanks to all who contributed to this issue. As always, this Bulletin must serve the needs of all of the members of the Sleep Research Society. To that end I am very interested in receiving suggestions for new articles and/or suggested contributors. I would also like to hear from you if you would like your laboratory highlighted in one of the domestic or international laboratory spotlights. Please email me at Helen_J_Burgess@rush.edu with all your ideas and suggestions. Wherever you may be, I wish you good health and time to rest and recharge over this holiday season. Our thoughts and prayers continue to be with the people of Newtown, Connecticut.
Plans are underway for the 18th annual Trainee Symposia Series (TSS) to occur at SLEEP 2013 in Baltimore, MD. The Trainee Education Advisory Committee (TEAC) along with a new and diverse set of 19 trainees serving on the Trainee Day Subcommittee are working to create an innovative program that matches the interest and needs of the trainees and the evolving landscape of sleep research. This coming series will feature the theme of the ‘omics’ of sleep. Several workshops will focus on introducing “omics” approaches to studying sleep (i.e., proteomics, metabolomics, clinical genomics, etc.). Through the proposals of our interdisciplinary trainee subcommittee, 8 “omics” sessions, 8 career development workshops, and 16 scientific symposia will be offered at what is likely to be our biggest TSS yet.

As in past years, the TSS will be held across two days, Saturday afternoon/evening, and Sunday morning on June 1st and 2nd, 2013. Biannually, the TSS offers an F- and K-award grant writing workshop for a small group of trainees preparing to submit these applications in the near future. Once again this workshop will be offered on Saturday afternoon, June 1st, followed by the official kick-off of the TSS with the keynote address (Eric Green, MD, PhD, Director of the National Human Genome Research Institute of the NIH), a datablitz (back by popular demand), reception, and career fair. On Sunday morning, June 2nd, trainees will have the opportunity to choose four symposia to attend among 32 choices. The TSS will conclude in time for trainees to attend the main Associated Professional Sleep Societies program.

In other news, TEAC is developing a ‘Trainee Roadmap’ for careers in sleep research. This roadmap will be an illustrative guide to potential avenues a trainee might choose that would ultimately lead to a sustainable career in sleep research from the undergraduate level to early career positions. The roadmap will identify commonly experienced facilitators and barriers to pursuing this type of career.

Lastly, TEAC, in partnership with the SRS Membership and Communication Committee, are making plans to solicit volunteer assistance from the society’s trainees to edit and verify the accuracy of numerous sleep and circadian rhythm articles posted in the popular online encyclopedia, Wikipedia. Given the growing public awareness of the importance of sleep, the committees believe monitoring these sleep and circadian rhythm articles would better inform the public about sleep and circadian rhythms, and the research endeavors related to them. Coordination efforts are in progress, so please stay tuned.

**TEAC Trainee Subcommittee Members:**
Andrew Westwood (Boston University), Andrew J. K. Phillips (Harvard/Brigham and Women’s Hospital), Josiane Broussard (Cedars-Sinai Medical Center), Sarah Horsey Simpson (Drexel University), Amanda Hayes (Johns Hopkins University School of Nursing), Iuliana Harsescu (Loughborough University), Jaime M. Hughes (North Carolina State University), Rodolfo Soca (Northwestern University), Laura Straus (San Diego State University/University of California, San Diego), Ari Shechter (St. Luke’s-Roosevelt Hospital, Columbia University), Monica Kelly (University of Arizona), Teresa Arora (University of Birmingham), Elizabeth McDevitt (University of California, Riverside), Laura Kurdziel (University of Massachusetts, Amherst), Ivan Vargas (University of Michigan), Allison Wilkerson (University of North Texas), Annette Fedson (University of Pennsylvania), and Devon Grant (Washington State University).

**Acknowledgments**
Sleep Research Society’s support of trainees and their transitions into their early careers is overseen by TEAC. Thank you to the following TEAC committee members: Philip Gehrman, PhD Chair; Lisa Meltzer, PhD, Vice Chair; Allan Pack, PhD, MBChB, Board Liaison; Xiang Gao, MD, PhD; Eva Szentirmai, MD; Kelly Baron, PhD; Monique LeBourgeois, PhD; Rachel Manber, PhD; Giancarlo Vanini, MD; Sonia Ancoli-Israel, PhD; and Jared Saletin, Trainee Member-at-Large Elect.

**Megan E. Ruiter, PhD**
Trainee Member-at-Large
SECRETARY/TREASURER’S REPORT

I was honored to assume the role of SRS Secretary/Treasurer in June 2012, and appreciate the opportunity to learn from prior Secretary/Treasurers Dr. Ron Szymusiak and Dr. Janet Mullington while I was on the Board of Directors. While the economy continues to inch into recovery and research dollars are becoming more scarce, the SRS did comparatively well over the last year. Indeed, our net assets grew by about $417,000 between September 2011 and September 2012. As of September 30, 2012 the unaudited financials show the total assets for the SRS at just over $3,434,000. The increase in assets this past year was primarily from two sources. First, the Boston meeting was a huge success. Our profits from the meeting increased almost one-third over the prior year. This was due to an increase in the number of SRS members attending the meeting, as well as small increases in revenue from most other meeting-related sources. Second, our investments outperformed the overall market during the past year, thanks to the balanced mix of investments in our portfolio.

The financial viability of the SRS moving forward depends critically on our ability to sustain our growth as a society, which will require the generation of new revenue and additional activities to raise public awareness. The SRS Board of Directors and the society’s standing committees, especially the Educational Programs Committee, continue to consider new ways to generate revenue while remaining focused on the core missions of the SRS: supporting research and education in sleep science. We also continue to place great importance on our efforts to build relationships with members of Congress and NIH, with the aim of increasing research dollars available to our Members.

I would like to take the opportunity to remind everyone our two biggest and most consistent sources of revenue are the annual meeting and Membership dues. If you have already renewed your membership for 2013, I thank you. If you have not, I encourage you to do so as soon as you can. Membership dues can be paid on the SRS webpage. In an effort to aid Members in transition from post-doc to full member status, we are instituting a new, graduated dues structure in 2013. For current post-doc members transitioning to full membership status in 2013, rather than paying $180, the fee will be $120 for the first and $150 for the second year of full membership. We hope this will help retain the next generation of investigators within the SRS. I also encourage you to attend the annual meeting next year, scheduled for June 1-5, 2013 in Baltimore, Maryland. Please also encourage your colleagues to join the SRS and attend the meeting. Our field and our science are enriched when investigators from other fields collaborate and join our ranks, thereby providing a valuable fresh perspective to the science of sleep.

Allow me to end by reflecting on a consistent theme I have noted since I joined the Board in 2009. Thanks to the involvement of the SRS Membership, I have been consistently impressed with the thoughtfulness and commitment of the Board and all the SRS Committees. Together, these individuals volunteer hundreds of hours every year to strengthen our society and serve our members. It is truly the Members who make the SRS great, and I look forward to continuing to serve you, alongside the other Board members, for the remainder of 2012-2013.

Sean Drummond, PhD
Secretary/Treasurer
Committee Report

Membership and Communications Committee Report
The Membership and Communications Committee has some exciting new projects under development to improve communication and benefit members. Proposals are being prepared to create a Twitter account for the SRS and in collaboration with the Training Education Advisory Committee (Philip Gehrman, Chair) we plan to work with trainees to edit sleep and circadian rhythms related postings on Wikipedia. The committee believes that social networking sites such as facebook and twitter present a great opportunity to expand the presence of the SRS beyond the current online website format which was updated with a face lift and new content this year. These projects build upon our launch of the SRS facebook page in June 2011, and at the time of writing this report the SRS has 485 “likes.” Regular posting are made to the site to update members on upcoming meetings and recent events in sleep research.

The Membership and Communications Committee meets several times a year to review and/or create innovative ways of communicating with members and for recruiting and retaining members to the society. If you have any suggestions or comments that may improve the activities of the committee feel free to contact me (email srsmembership@srsnet.org) and your comments can be raised at committee meetings for discussion.

Don’t forget, the renewal period is currently underway so I encourage all members to renew and to reach out to potential new members to join the society. Members can join or renew their membership online at www.sleepresearchsociety.org.

Kathryn J. Reid, PhD
Chair, Membership Committee
SRS Representatives Visit the NIH
On October 24, 2012, a group of representatives from the Sleep Research Society paid visits to the senior leaders of eight institutes that fund sleep research at the National Institutes of Health. The visit was organized by SRS staff Nicholas Cekosh working with the NIH Liaison Subcommittee of the Committee on Governmental Relations, and is an annual event. The representatives included Safwan Badr, Ruth Benca, David Dinges, Janet Mullington, Ketema Paul, Clif Saper, Steve Shea, Ronald Szymusiak, Fred Turek, and Phyllis Zee. Drs. Shea and Badr also represented the American Academy of Sleep Medicine, which was invited to participate this year, and will send its own delegation at a different time.

At the National Institute for Neurological Disorders and Stroke, Ketema Paul and Clif Saper met with the Institute Director, Dr. Story Landis, and the Director of the Extramural Program, Dr. Robert Finkelstein. NINDS continues to spend about 90% of its funds for R01 grants in the order that the study sections recommend with their percentile scores, but the last 10% are adjusted for Program balance. They fund work on the basic mechanisms of sleep and circadian rhythms, and how they interact with neurological disorders. They continue to fund T32 and F32 (training grants) and K (career) awards at around 25% of those submitted. NINDS Sleep Program officer Merrill Mitler is retiring, but the institute is actively seeking a replacement.

The National Institute of Mental Health was visited by Ron Szymusiak, Fred Turek, and Ruth Benca, where they met with Program officers Drs. Aleksandra Vicentic (Behavioral Science and Integrative Neuroscience), Michael Kozak (Adult Psychopathology and Psychosocial Intervention), Matthew Rudorfer (Somatic Treatment), and Marjorie Garvey, (Mechanisms of Biobehavioral and Mood Dysregulation). The NIMH is interested in work that relates sleep to emotional regulation, synaptic plasticity, and memory after traumatic events. They are also interested in sleep loss during development, and its impact on brain development as regards emotion, cognition, and social interactions. The NIMH remains interested in circadian rhythms and sleep as they relate to major psychiatric disorders such as depression and schizophrenia. A key point for the NIMH is that sleep and circadian research proposals must provide a clear relationship with these mental health issues. As with any NIH proposal, it is best to discuss a proposal that may be assigned to NIMH with the appropriate Program officer before the proposal is submitted.

At the National Institute on Aging, Phyllis Zee, Ron Szymusiak, and Clif Saper met with Program officers Miroslav (Mack) Mackiewicz (Integrative Neuroscience), David Finkelstein (Biology of Aging), and Lis Nielsen (Behavioral and Social Research). Although much of the sleep research at NIA is funded through the Integrative Neuroscience Program, the Biology of Aging Program funds work on circadian clocks and aging, the Behavioral and Social Research Program is interested in applying actigraphy across various cohorts in large epidemiological studies, and the Geriatrics and Gerontology Program is interested in falls in the elderly and its relationship to sleep loss. However, NIA has been funding a large number of obligations for large trials from previous years, and so has had a relatively modest rate of funding new R01 (11%) and K awards (15%) in the last year.

David Dinges and Safwan Badr visited the National Institute for Nursing Research where they met with Dr. Patricia Grady, the Institute Director, and her staff. NINR focuses on symptom management, and is interested in sleep health, including excessive daytime sleepiness, sleep debt, and sleep recovery, particularly as they relate to chronic illness, symptom management (e.g., pain) and end of life (the key missions for NINR). They also integrate sleep training in their teaching programs for nurses.

At the NIDDK, Ketema Paul, Steven Shea, and Fred Turek met with Deputy Institute Director Dr. Gregory Germino, Dr. Richard Farshian (Office of Scientific Program and Policy Analysis), as well as Program officers Drs. Corinne Silva (Diabetes, Endocrine, and Metabolism), Peter Savage (Clinical Diabetes Research), Mary Evans (Nutrition, Obesity and Digestive Diseases), and Mary Horlick (Pediatric Clinical Obesity). NIDDK is particularly interested in the relationship of sleep loss and circadian misalignment with obesity, glucose intolerance, and diabetes.

At the National Institute of Child Health and Development, Phyllis Zee, Janet Mullington, and Judy Owens visited with Program staff, Drs. Nancy Shinowara, Mary Lou Oster-Granite, Beth Ansel, Lisa Kaeser, Rosalin King, and Lynn Haverkos. NICHD has a strong interest in the role of sleep in child health, including Sudden Infant Death Syndrome. However, they also expressed interest in the role of sleep in school readiness, as well as social environment, health care disparities, and rehabilitation after brain injury. They are also interested in the role of sleep loss in causing obesity in children.

Fred Turek and Ketema Paul visited the National Institute on Alcohol Abuse and Alcoholism, where they met with Drs. Antonio Noronha, Ellen Witt, and Lindsey Grandison, the leaders of the Division of Neuroscience and Behavior. NIAAA has issued two program announcements in the last year for research on the interaction of alcohol abuse with sleep disorders and circadian rhythms, in particular the accumulating evidence that alcohol abuse causes disruptions of sleep and circadian rhythms, which persist after abstinence, and may lead to relapse. This institute may merge into the NIDA (see below) over the next few years, but given the similar (and relatively new and under-explored) interest in sleep and circadian rhythms at both institutes, this interest should continue.

Ruth Benca and Steve Shea visited the National Institute on Drug Abuse, where they met with Institute Director Nora Volkow, Deputy Director David Shurtleff and Director of Science Policy and Communications, Susan Weiss. Dr. Volkow herself is actively involved with sleep research, and enthusiastic about increasing the visibility of sleep research at the NIH. She suggested that the sleep community consider a Common Fund Project (also mentioned by the NIDDK staff), focusing on the impact of sleep and circadian rhythms on some cross-cutting aspects of health, such as pain or metabolism, which might reach across Institutes. She expressed interest in projects related to the interactions of sleep and insomnia with drug addiction, pain, and

Continued on the following page →
conditioned responses to drugs.

At the National Center for Complementary and Alternative Medicine, Ruth Benca, Janet Mullington, and Safwan Badr met with the Deputy Director, Dr. Jack Killen, as well as with Drs. Alyssa Cotler (Communications and Public Liaison) and D. Lee Alekel (the Program officer for sleep, and a representative to the Trans-NIH sleep group). NCCAM is particularly interested in mind-body connections in relation to management of pain and stress, as chronic pain is the primary reason that many people seek alternative medicine. Studies on complementary medicine interactions with sleep, as well as melatonin or light therapy would fit into their portfolio.

The Program officers for Sleep from the National Heart, Lung and Blood Institute were not available during the time of this visit, and a later, separate visit by the officers of the SRS and the AASM was planned for November.

Clifford B. Saper, MD, PhD
NIH Liaison Subcommittee of the Committee on Governmental Relations

Contribute to the Future of Sleep & Circadian Research

Your support of the Sleep Research Society Foundation is crucial to fostering the continued growth and development of our field by funding deserving investigators in sleep & circadian research and training young investigators.

Please consider making a donation online and support sleep and circadian research in 2012 and beyond. The next generation of investigators is counting on your support.
The November elections returned the incumbent Democratic President, Barak Obama, to the White House, resulted in the Democrats expanding their majority in the Senate by gaining two seats, and led to the Republicans losing seats, but ultimately maintaining control of the House of Representatives. Against this backdrop the “lame duck” Congress returned to Capitol Hill to address pressing issues before the end of the congressional session, which roughly coincides with the end of the calendar year.

Lawmakers are presently negotiating a deficit reduction strategy to avert or mitigate the impending “fiscal cliff”. The expiration of the Bush-era tax cuts, the debt ceiling, the rate at which physicians are reimbursed for the services they provide to Medicare program beneficiaries, and comprehensive funding cuts known as sequestration are all part of current fiscal cliff negotiations. In order to mitigate looming 8% funding cuts to the National Institutes of Health (NIH) and other research-oriented agencies, action on sequestration must be taken before the first of the year.

While partisan control of Congress will be consistent with the 112th Congress, there will be notable changes on key committees in the 113th Congress due to election losses and retirements. Most notably, Congressman Dennis Rehberg (R-MT-At Large) will no longer be the Chairman of the House Labor-HHS-Education Appropriations Subcommittee, which crafts the annual appropriations bill that funds federal medical research programs. The members of the Appropriations Subcommittees, including L-HHS, will be announced once the new Congress convenes in January.

The federal government is currently operating under a 6-month Continuing Resolution that is funding programs at fiscal year 2012 (FY12) levels through March of next year. When the new Appropriations Committees convene at the beginning of next year, they will begin addressing the outstanding appropriations for FY13 in addition to beginning their annual work on FY14 appropriations. At that time, it will be important to reinvigorate efforts to advocate for sleep research and training activities at NIH as well as awareness and monitoring activities at the Centers for Disease Control and Prevention (CDC).

During the lame duck session of Congress, the Sleep Research Society (SRS) has continued to have a presence on Capitol Hill. On the evening of Wednesday, December 12th, the SRS and other organizations that comprise the NHLBI Constituency Group hosted a Capitol Hill Reception honoring Gary H. Gibbons, MD, the new Director of the National Heart, Lung, and Blood Institute (NHLBI). NHLBI is the third largest institute at the NIH and home of the National Center on Sleep Disorders Research.

The event was well attended by key congressional staff, NHLBI patient group stakeholders, medical researchers, and NIH leadership. The impressive program featured remarks by Francis Collins, MD, PhD, Director of the National Institutes of Health, Regina M. Benjamin, MD, MBA, Surgeon General of the United States, Senator Mike Crapo (R-ID), Representative Lois Capps (D-CA-23), John E. Maupin, DDS, MBA, President of the Morehouse School of Medicine, and the Honorable Louis W. Sullivan, MD, former Secretary of the US Department of Health and Human Services.

Prior to joining the NHLBI, Dr. Gibbons served as the founding director of the Cardiovascular Research Institute, chairperson of the Department of Physiology, and Professor of Physiology and Medicine at the Morehouse School of Medicine (MSM), in Atlanta. During his tenure, the Cardiovascular Research Institute emerged as a center of excellence, leading the way in discoveries related to the cardiovascular health of minority populations. It is also important to note that during Dr. Gibbon’s tenure, MSM received an NHLBI T-32 grant which expands opportunities for Clinical and Translational Research (CTR) training at the school in the area of sleep and cardiovascular disease research.

Dale P. Dirks and Meaghan Pilarcik
Health and Medicine Counsel of Washington
Circadian Rhythms Research Section Report
The SRS Circadian Rhythms Research section met in Boston on Wednesday June 13th, 2012. The circadian rhythms SRS section is seen as the ideal research group to bridge the gap between fundamental research and circadian sleep medicine. At the meeting, we discussed the importance of supporting initiatives that comprise a translational approach and extend from basic to clinical areas. We also discussed ways to enhance communication between SRS and AASM committee members, and possibly with external groups such as SRBR.

Circadian Rhythms Research Section members are encouraged to volunteer for SRS committee membership and contact me with ideas for discussion at next year’s section meeting in Baltimore. If you’re interested in becoming more involved in the SRS, volunteer now for SRS committee membership for 2013 by going to the SRS website and completing the volunteer form. If you are an experienced/senior section member who is willing to mentor new section members or non-section members who need circadian expertise, please let me know. Finally, please encourage your students and trainees to come to the section meeting with you in 2013.

Diane B. Boivin, MD, PhD
Circadian Rhythms Research Section Head

Sleep and Behavior Research Section Report
The meeting of the Sleep and Behavior Section at the SLEEP meeting held in Boston, June 2012, provided an opportunity for each of the recipients of the NIH RFA, entitled, “Sleep and Social Environment: Basic Biopsychosocial Processes (R01)” to present an overview of their research and describe the specific aims of their studies. Specifically, we heard from Drs. Diane Lauderdale (University of Chicago), Peter Franzen (University of Pittsburgh), Richard Bootzin (University of Arizona), and yours truly (RAND Corporation). Collectively, these research programs represented novel approaches to studying links between sleep deprivation and emotional regulation from a developmental perspective (Dr. Franzen), sleep as a pathway through which economic and social conditions impact older adults’ health (Dr. Lauderdale), the links between sleep and psychological health in the aftermath of divorce (Dr. Bootzin), and a study of sleep, relationship functioning, and health in a sample of military couples (Dr. Troxel). Finally, Dr. Daniel Lewin, former Director of the Sleep Disorders Medicine Program in the National Center on Sleep Disorders Research at NIH, discussed the history and goals of the RFA which was sponsored by the Office of Behavioral and Social Sciences Research (OBSSR) as well as future opportunities for sleep and behavior research. Personally, I was invigorated and inspired by hearing these unique perspectives and innovative research programs, and I sincerely hope our attending members felt the same. I encourage all of our members to attend the section meeting this year in Baltimore, MD. Who knows, maybe we will hear from the recipients of the R21 for this funding announcement this year? Stay tuned and please make every effort to attend.

Wendy M. Troxel, PhD
Sleep and Behavior Research Section Head
Sleep and Circadian Research at the NIDDK

The mission of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is to conduct and support medical research and research training and to disseminate science-based information on diabetes and other endocrine and metabolic diseases; digestive diseases, nutritional disorders, and obesity; and kidney, urologic, and hematologic diseases, to improve people’s health and quality of life. The NIDDK supports a wide range of medical research through grants to universities and other medical research institutions across the country. The Institute also supports government scientists who conduct basic, translational, and clinical research across a broad spectrum of research topics and serious, chronic diseases and conditions related to the Institute’s mission. In addition, the NIDDK supports research training for students and scientists at various stages of their careers and a range of education and outreach programs to bring science-based information to patients and their families, health care professionals, and the public.

External research funded by the NIDDK is organized into three scientific program divisions: Diabetes, Endocrinology, and Metabolic Diseases; Digestive Diseases and Nutrition; and Kidney, Urologic, and Hematologic Diseases. In addition to these programmatic areas, the NIDDK also houses the Office of Obesity Research, which coordinates obesity-related research and programs within the Institute; and the Division of Nutrition Research Coordination, which advises the Director of NIH and others on research issues and coordinates nutrition research and research training initiatives across the NIH. Moreover, the Obesity Research Task Force, which was established to accelerate progress in obesity research across the NIH, is co-chaired by the NIDDK Director, Dr. Griffin P. Rodgers.

The NIDDK uses strategic planning—with broad external input—to help guide its research efforts, including research on how sleep/circadian rhythms influence the development of diabetes and obesity. Two strategic plans are serving as scientific guideposts for future research: Advances and Emerging Opportunities in Diabetes Research: A Strategic Planning Report of the Diabetes Mellitus Interagency Coordinating Committee (http://diabetesplan.niddk.nih.gov) and NIH Strategic Plan for Obesity Research (http://obesityresearch.nih.gov/about/strategic-plan.aspx). Both Plans contain objectives and future research goals that address sleep and/or circadian rhythms. Representatives from the Sleep Research Society provided input on future research directions that address the role of sleep as it relates to obesity during the development of the Obesity Research Strategic Plan. The NIDDK also participated in the development of, and provides on its website a link to, the NIH Sleep Disorders Research Plan that was published in November 2011, which also serves as a scientific guidepost for NIDDK-supported research: www.nhlbi.nih.gov/health-prof/sleep/201101011NationalSleepDisordersResearchPlanDHHSPublication11-7820.pdf

While the mission of NIDDK has historically included studies on circadian rhythms—particularly as related to hormone action—there has been an increasing appreciation over the past 5 years of the bidirectional interaction between sleep and circadian rhythms and metabolic disease. For example, obesity increases the risk of sleep disordered breathing (such as sleep apnea) and the disruption of sleep and/or circadian rhythms has profound influences on both carbohydrate and lipid metabolism. These changes in metabolism contribute to the development of metabolic diseases such as obesity and type 2 diabetes. Recently published studies from NIDDK-supported researchers have demonstrated an integral mechanistic link between circadian rhythms and metabolism that includes shared signaling pathways between the components of the central (hypothalamic) and peripheral (tissue specific) clocks and metabolic pathways. To propel progress in this area, in April 2010, NIDDK organized a workshop on “Circadian Rhythms and Metabolic Disease,” which brought together investigators from the circadian and metabolism fields. Presentations focused on the mechanistic and physiologic intersections of sleep and circadian rhythms with that of metabolic disease, including obesity and diabetes.

A summary of the meeting, written by NIDDK program staff, was published in July 2010 (1). In September 2011, the Clinical Obesity Research Panel, in conjunction with the Obesity Research Task Force, organized a forum on “Sleep and Obesity.” During this forum, both clinical and basic sleep researchers provided insights on the associations between sleep and sleep disorders and obesity and metabolic dysfunction, as well as the influence of sleep on eating behaviors and energy balance in children and adults.

NIDDK continues to maintain a robust portfolio on sleep research and circadian rhythms that spans all three scientific program divisions. The number of grants that have been funded under the topic of “sleep research” has remained steady from Fiscal Year (FY) 2010 through FY2012. Importantly, a number of these are training grant mechanisms, indicating that there are new researchers coming into the field. For example, training grants are addressing mechanisms underlying meal entrainment, crosstalk between molecular elements of the circadian clock with nuclear receptor signaling pathways, and the link between obstructive sleep apnea and non-alcoholic liver disease. A recent publication that demonstrated impairment of insulin signaling in the adipocytes of subjects who were sleep restricted was partially funded by an NIDDK-supported Diabetes Research and Training Center (2). The NIDDK supports a number of clinical studies that range from investigating the effect of weight loss on obstructive sleep apnea and the role of type 2 diabetes on sleep disordered breathing, to the role of circadian misalignment on energy metabolism and weight gain. Sleep apnea is increasingly recognized as contributing to impaired glucose metabolism and risk of poor diabetes control. There are several opportunities to study the relationship between sleep disorders and diabetes in NIDDK-funded clinical trials, such as Look AHEAD (www2.niddk.nih.gov/Research/ClinicalResearch/ClinicalTrials/Patients/ClinicalResearchLookahead.htm). Basic science studies address crosstalk and integration between the circadian clock and signaling pathways in glucose and lipid metabolism. Both the Obesity and Diabetes Research Strategic Plans emphasize the importance of measuring sleep and sleep patterns as well as taking into account circadian misalignment (such as shift work) when designing studies that are aimed at investigating and measuring glucose metabolism, metabolic control, feeding behavior, and the development of obesity.

Continued on the following page →
The investment made by NIDDK into studies involving sleep and circadian rhythms is reflected in the number of recent publications in this area by NIDDK-funded researchers. A number of these recent publications have demonstrated the integral link between the circadian clock and metabolism. For example, two laboratories have demonstrated that the nuclear receptor transcription factor (REV-ERB) directly links the circadian clock to fat and glucose metabolism (3, 4); a potent synthetic compound that activates REV-ERB was shown not only to alter circadian behavior and increase energy expenditure in mice, but also to decrease fat mass in obese mice (5). Together these studies have led to important insights into designing potential drug targets to treat not only sleep disorders but also metabolic diseases such as obesity and diabetes. Another recent study from an NIDDK-supported researcher provided evidence for the potentially profound influence of the timing of eating on the development of obesity. In this study, mice were fed a high fat diet either ad lib (they could eat whenever they wanted throughout the day and night) or during a restricted 8 hour period (6). Despite eating the same amount of calories, mice on the restricted time of eating were protected from obesity, liver damage, and inflammation. Overall, they had improved motor coordination and better use of nutrients and energy expenditure. Together, these studies have important implications for potential therapeutic as well as behavioral treatments for obesity and related diseases such as diabetes and fatty liver.

In summary, given the alarming national increase in the incidence of obesity, diabetes, and related comorbidities that are also starting to appear at a younger age, studies that investigate the mechanisms involved will continue to be an important focus of the mission of NIDDK research. Thus, the integral relationship between the circadian clock and metabolism, and the consequences of circadian rhythm misalignment and sleep disruption on metabolic disease, will continue to provide insight into the development of metabolic dysfunction and provide the basis for designing effective therapeutic interventions and treatments.

References
2. Impaired Insulin Signaling in Human Adipocytes After Experimental Sleep Restriction. Annals of Internal Medicine 157:549-557 (2012) Broussard, Ehrmann, Van Cauter, Tasali, Brady. The Diabetes Research Training Center grant (P60) at University of Chicago contributed funding to this project.

Corinne M. Silva, PhD
Diabetes, Endocrinology and Metabolic Diseases
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
The National Sleep Research Network: An Update of Activities Supporting Cross-Institutional and Trans-Disciplinary Collaborations to Advance Sleep Medicine

The CTSA Sleep Research Network (SRN) was created in June 2008 with initial support from the University of Pittsburgh Clinical and Translational Science Institute, and subsequent support from a R13 conference grant awarded by the NIH’s National Center of Research Resources. The SRN aims are to catalyze inter-institutional collaborations among sleep researchers and trainees and enhance interactions with the NIH, professional societies and academic centers supported by Clinical and Translational Science Awards.

Overarching goals are to:

• Foster a national network of sleep researchers.
• Implement an organizational structure to facilitate communications and collaboration.
• Foster interest and work groups around important sleep research topics that address significant public health and mechanistic questions related to sleep medicine and circadian biology, specifically questions that require large-scale, coordinated, and multidisciplinary approaches.
• Support the sleep research community by attracting and supporting the next generation of sleep medicine investigators.

Since 2008, the SRN has supported 5 annual meetings of sleep researchers and trainees, leaders of Clinical and Translational Science Institutes, professional societies, and the NIH. These meetings provide a forum for sleep researchers, including junior investigators, to meet annually for the purpose of identifying opportunities for new lines of collaborative research and training. In addition, the meeting is used to update researchers on new diagnostic and intervention strategies across the life span. Trainee travel awards are granted annually and trainees are paired with mentors from other institutions.

A Steering Committee is comprised of 10 members, headed by an elected Chairperson, who convene monthly via a one-hour conference call. The Chairperson is elected for a two-year term, after which s/he serves in an ex-officio status for one year. Two new members are elected each year, and two members rotate off the committee. It is responsible for overseeing interactive network activities and for developing the program for the annual SRN meeting.

Two Subcommittees operate to help meet the SRN goals. A Resource Subcommittee helps identify and stimulate the development of resources to support sleep research both within and across institutions, especially to leverage resources for clinical and translational research within and across institutions. A Communications Subcommittee helps identify ways to enhance communications amongst members and between members and local and national CTSA and other national sleep leadership resources.

Four Working Subgroups operate to catalyze specific research projects in the following areas: Research to Inform Public Policy; Clinical Trials and Outcome Research; Genetics and Genomics Research; and Pediatric Research. These groups meet periodically to develop/implement multicenter proposals.

Recent highlights of these activities include a successful RO-1 award on Resident Work Hours/ICU Safety (PI; Dr. C Czeisler) and have helped with successful grants for supporting research on sleep and autism (PIs: B Malow and A Hallbacker). Proposals also have been submitted on: cross-institutional genetics training; a planning grant for sleep apnea intervention in pregnancy; and a periperrative sleep management proposal. The Pediatrics group has organized a data collection tool for use in a multicenter study of pediatric narcolepsy.

The 2012 Annual Meeting was held October 22-23 in Bethesda, MD. In addition to meetings of subgroups and discussion of new research priority areas, this meeting featured:

• A round table discussion including 11 representatives from the Trans-NIH Sleep Advisory Board who discussed sleep research topics of interest to their institutes and ways the sleep research community could interface with them.
• A panel discussion of Implementation of the 2011 NIH Sleep Disorders Research Plan.
• A panel discussion of Multi-Institutional Training.
• An overview of informatics tools to support research and training, with “hands-on” demo’s.

Nine Trainee Awards were granted and trainees were paired with mentors and participated in a poster session. The 2012 trainees are: Lev Becker, PhD Brendan Lucey, MD Salvatore Insana, PhD Simon Warby, PhD Meena Khan, MD Mareen Weber, PhD Brian Koo, MD Zachary Weil, PhD Judette Louis, MD, MPH

The SRN welcomes the input of the entire sleep research community! Sleep Research faces critical challenges due to the need for large-scale science (well powered genetics studies, clinical trials, etc.) and impactful translational science, and for training the next generation to conduct such research. The need for collaborative, cross-center research has never been stronger. Please contact any of the Steering Committee members below or Patricia Cooper to identify ways to help with the SRN’s mission. Further information can be obtained at: www.sleepresearchnetwork.org

Susan Redline, MD, MPH
Chair, SRN Steering Committee

CTSA Sleep Research Network Steering Committee
R Benca, D Bliwise, E Boudreau, C Czeisler, D Gozal, E Mignot, R O’Hara, S Redline, V Somers, J Walsh, P Strollo, D Kupfer (ex officio).

Resource Subcommittee Chair: E Boudreau
Communications Subcommittee Chair: R O’Hara
SKILLS FOR THE RESEARCHER

Get Connected with LinkedIn

The SRS might like Facebook, but how does it feel about LinkedIn? LinkedIn, like Facebook, is a social networking website that allows you to set up a profile page, share information about yourself, and connect with other individuals. A LinkedIn profile, like a Facebook profile, contains your picture, basic information about you and your background, and people you are connected with through the website. Also, aspects of that page are private, viewable only to those you allow to see it (which can be modified using privacy settings). Unlike Facebook, LinkedIn is not intended to be a place to share informal thoughts and pictures with friends and acquaintances. Rather, it’s all business. LinkedIn is a professional social network, and the connections are not really supposed to be friends – they are supposed to be coworkers, collaborators, mentors, and other business contacts.

On your LinkedIn profile, you can list your place of employment and title, and a description of the type of work you do. You can include your educational and professional background and history, honors and awards, skills and expertise, and additional information. One unique feature is that if you list a particular skill or area of expertise, other members can “endorse” you – indicate that they agree that you have expertise in this area. This way, false claims can be weeded out and individuals who support you can be identified. LinkedIn aims to provide all of the features of a professional website. You can also list ongoing projects and publications, and other things such as patents, certifications, etc. The idea is that it could function as a limited online CV that also provides links to other individuals who you are associated with.

There are several uses for which LinkedIn has become well-known. The most well-documented of these is in searching for jobs. Not only is LinkedIn integrated with popular job search websites, the networking features of the site are specifically geared towards leveraging connections to get useful contacts. Part of this involves tapping into your “extended network.” This represents the people who are second-degree connections – those who you may not know, but you are connected to through a common relationship. This can be key in accessing individuals with whom you may only have tenuous connections. Another feature of LinkedIn is its growing forum and Q&A capabilities. Many organizations set up pages (like on Facebook) where they host discussions and push alerts and news to subscribers. Also, LinkedIn Answers is a service where you can access the expertise of those in your group.

Like Facebook, users need to be judicious in deciding what to include on their profile; this may be even more important in this case, since many professional colleagues will be able to see it. Also, users need to remember to always maintain a professional attitude on LinkedIn – it is a professional network and unprofessional communications are usually frowned upon. But it can be a powerful tool for developing your professional network and leveraging your first-, second-, and third-degree connections for professional development.

Michael A. Grandner, PhD
Weight Loss Treatment and Obstructive Sleep Apnea

OSA is a highly prevalent disease which has significant public health consequences and a three-fold increase in mortality risk. [1] The strongest risk factor for OSA is obesity with a 4-fold increase in prevalence for every 1 standard deviation increase in body mass index.[2] Longitudinal increases in weight result in increasing severity of OSA whilst reductions in weight have an opposite, although smaller effect.[3,4] In those without OSA, a 10% increase in weight is associated with a 6-fold increase in the risk of developing moderate to severe OSA.[4] For this reason, weight loss is recommended in the management of OSA.[5-7]

There are a multitude of techniques which can be used to achieve weight loss from simple recommendations, behavioural and lifestyle modifications including very low calorie diets (VLCD) to bariatric surgery. Pharmacotherapy is limited due to concerns with the long-term safety.[8] Dietary restriction and/or medication reduce weight by 5-8.5 kg (5-9% of initial body weight) with 3-6kg weight loss maintained (3-6%) at 4 years. In contrast, exercise only or advice only interventions show no benefit at any point in time.[9] There is a host of other contributors to the “obesity crisis” which need to be addressed formally such as indoor temperatures, drug side effects and circadian aspects to food intake.[15]

Whether weight loss translates into meaningful reductions in OSA severity appears to vary depending on baseline AHI and weight plus the amount of weight loss achieved. Three randomized trials provide data which led to the latest randomised bariatric surgical trial, and are summarised in Table 1.

The first study by Tuomilehto and colleagues in Finland looked at 72 overweight subjects (BMI 28-40 kg/m²) with mild OSA (AHI 5-15 events per hour (eph)) who were randomized to either intensive lifestyle modification including a VLCD or general advice (a single dietary and exercise session). The group mean demographics were 65% male, age 51 years, weight 96.8 kg, BMI 32.4 kg/m² and AHI 6.7 eph. Compared to the control group the lifestyle modification group had a greater change in weight (-10.7±6.5 vs -2.4±5.6 kg, p < 0.001) and AHI (-4.0±5.6 vs 0.3±8 eph, p 0.011) and more patients were cured at 1 year as defined by AHI <5 eph (63% vs 13%, p=0.033).[10]

Two further studies looked at patients with more severe OSA. In Sweden, 63 obese (BMI 30-40 kg/m²) patients with OSA (AHI>15 eph) were studied: all were male with mean age 49 years, weight 112.5 kg, BMI 34.6 kg/m² and AHI of 37 eph. They were randomised to either a VLCD or their usual diet for 9 weeks. Compared to controls, those on VLCD had a greater reduction in weight (-18.7±4.1 vs 1.1±1.9 kg, p < 0.001) and AHI (-25±17 vs -2±1 eph, p < 0.001), with more cured (ie AHI<5) (18 vs 0%).[11] The authors completed a 12 month follow-up study where patients from the same study were pooled into one cohort. Patients from the control arm were then provided with the same 9 week VLCD. The entire cohort was followed up for 1 year. In the longer term study weight loss 12 months after the 9 week intervention remained significant (-12.1±9 kg, p < 0.001) and AHI was also significantly lower (-17±16 eph, p<0.001).[12]

A large US study assessed 264 patients with type 2 diabetes, obesity (BMI>25 kg/m²) and OSA (AHI>5 eph) as part of a larger study looking at the effect of weight loss on diabetic control.[13] The group demographics were 41% male, age 61 years, weight 102.4 kg, BMI 36.7 kg/m² and AHI 23.2 eph. Patients were randomised to either a behavioural weight loss program or three sessions of general diabetes education. The behavioural weight loss group lost more weight (10.8±0.7 vs 0.6±0.7 kg, p <0.001) and had a greater fall in AHI (-5.4±1.5 vs 4.2±1.4 eph, p < 0.001) after 1 year.[13] Over twice as many patients in the weight loss group had a fall in their OSA severity category (estimated 40% vs 18%). OSA cure was seen in 36% of the active and only 10% in the conservative arm.

Thus, studies to date had indicated ~10 kg weight loss in patients with mild obesity resulted in ~60% cure rate if mild OSA and ~20% cure rate if moderate OSA. What effect greater weight loss would have in more obese patients with more advanced OSA is uncertain. They were randomized to either bariatric surgery (laparoscopic adjustable gastric banding) with lifestyle modification or lifestyle modification alone (“conventional” program).[14] The group demographics were 58% male, mean age 49 years with baseline BMI 45.1 kg/m² and AHI 61 eph. The lifestyle modification included dietary, exercise and behavioural advice as well as the offer of VLCD meal replacement.

After two years, the bariatric surgery group had significantly more weight loss (-27.8 vs -5.1 kg, p<0.01) but there was no difference in change in AHI (-25.5 vs -14.0 eph, p=0.18) compared with the conventional program. Moreover, there were no significant differences between groups AHI in REM and the impact of body position (ie % total sleep time spent supine) were also unchanged as was degree of hypoxemia. Of note, patients in both groups remained obese at the end of the study (BMI 37 vs 42 kg/m²) and most still had significant OSA. CPAP pressures used in both groups were unchanged. Only one patient, who was in the conventional program, was "cured" of OSA. One surgical patient required a further surgical procedure to re-adjust the band. Despite the relatively small change in AHI compared with weight, there were similar improvements in ESS, depression and 6 minute walk distance in each group, whilst greater improvements were seen in the surgical group with quality of life (SF36) and cure of metabolic syndrome (47 vs 8%).

The modest (rather than major) reduction in AHI with significant weight loss in the Australian trial, either via bariatric surgery or conservative management may be explained by several factors. First, insufficient weight loss may have occurred: patients remained obese, albeit less so than at study entry. Other obesity related conditions (metabolic syndrome) improved more so, than did OSA. Second, changes to craniofacial anatomy or physiology, either primary or secondary to obeseogenic eating habits, predisposing to upper airway instability, may have been present and irreversible. Third, deranged control of breathing and/or syn-
chronisation of upper and lower airway ventilatory pump activity due to neurohormonal factors, common to obesity (eg ghrelin or leptin) may also play a role.

Limitations of the Dixon study [14] were the difficulty in conducting a randomised surgical trial: although 30 patents were randomised into each group, only 26 of 30 in surgical group had surgery and 1 of 30 in conventional group has bariatric surgery. Analysis was undertaken in two ways (as intention to treat and per protocol) and the results were unchanged.

CPAP adherence did not differ between the groups. Within the surgical group, 28/30 participants had CPAP initiated; yet 20/30 were adherent (mean pressure: 11.9 cm H2O used for 4.9 hours/night) at 3 months and 14/30 adherent (mean pressure: 11.6 cm H2O for 5.2 hours/night) at 2 years. This did not differ significantly from the conventionally treated group where 25/30 had CPAP initiated; yet 20/30 were adherent (mean pressure: 11.9 cm H2O used for 4.9 hours/night) at 3 months and 14/30 adherent (mean pressure: 11.6 cm H2O for 5.2 hours/night) at 2 years.

Complications of bariatric surgery are dependent upon the type of surgery, the patients pre-morbid condition, surgical skill level and the type of institution where the surgery is conducted. 30 day mortality is estimated to be < 1%, whereas 1 year morbidity ranges from 5% (LAGB) to 15% (Roux-en-Y) and 25% (biliopancreatic diversion). The surgical procedure of choice varies as does regional areas of expertise which is changing overtime: for example between 2003 and 2008, in the USA Roux-en-Y gastric bypasses accounted for 65% and 49% of procedures and LAGB 24% and 42% procedures. Whereas in Europe over a similar period of time, roux-en-Y accounted for 11% and 42% of procedures and LAGB 64% and 43%.

Like smoking, significant public health benefit will come not from treating obesity related disease but from preventing or “curing” obesity itself. Bariatric surgery will play a role in the very obese but widespread availability is unlikely. It is also important to realise that the term bariatric surgery encompasses a variety of techniques which have varying success rates and associated morbidity.[16]


**Kirk Kee, MBBS and Matthew T Naughton, MD**

*Department of Medicine, Monash University, Melbourne, Australia and Department of Allergy, Immunology and Respiratory Medicine, The Alfred, Melbourne, Australia*
We are pleased to announce that the inaugural *Gordon Research Conference on Sleep Regulation and Function* will be held March 16–21, 2014, in Galveston, TX.

Sleep research is being advanced by efforts of investigators who possess diverse skill sets. The multidisciplinary approach to sleep research incorporates epidemiology, physiology, neurobiology, genetics, cell biology, biophysics, and computational biology. This conference meets a need to establish a focused meeting that incorporates intensive discussion in support of the rapid developments that are being made in sleep research. The conference will feature a Plenary Session, Topic Sessions, and Poster Sessions. Topic Sessions will be thematically linked and speakers will be acknowledged leaders in their respective fields.

Gordon Research Conferences is a non-profit organization managed by and for the benefit of the scientific community. Gordon Research Conferences are recognized as the world’s premier scientific conferences and provide an international forum for the presentation and discussion of research at the frontiers of science. Although the first Gordon Research Conference was held in 1931, there has never been a Gordon Research Conference devoted to sleep. As such, this timely meeting provides a new venue in which sleep researchers can discuss their latest work in a uniquely informal and interactive format.

Gordon Research Conferences has designated the Galvez Hotel in Galveston, TX as the site for the first conference. Galveston is located on the Texas Gulf Coast, approximately 40 miles south of Houston. The Hotel Galvez is a historic structure that has served as a destination vacation spot for generations. Houston is centrally located in the US and is served by a major international airport, with many flights connecting major cities in the US and Europe. It is anticipated that future Gordon Research Conferences on Sleep Regulation and Function will be held at sites in Europe and Asia. More information will follow as the meeting date gets closer. If you have questions, or would like some additional information, please do not hesitate to contact me.

**Mark R. Opp, PhD**  
*Professor and Vice Chair for Basic Research*  
*UW Medicine Research & Education Endowed Chair in Anesthesiology*  
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**Gordon Research Conference on Sleep Regulation and Function**  
**March 16–21, 2014**  
**Hotel Galvez**  
Galveston, TX  
**Chair:**  
Mark R. Opp  
**Vice Chair:**  
H. Craig Heller  
**Organizing Committee:**  
Derk-Jan Dijk,  
Marcos Frank,  
Paul Franken,  
Jim Krueger,  
Paul Shaw
Call for Committee Volunteers
The Sleep Research Society invites members to volunteer to serve on a standing committee. Committee members provide an invaluable service to the organization and members by contributing to initiatives and projects that are critical to the continued development of the field. Committee volunteers also gain professional enrichment through the diverse activities of a committee. For more information on volunteering for a committee or to access the online committee volunteer form click here.

Call for Applications: SRS Young Investigator Award
The Sleep Research Society will again offer the Young Investigator Award to recognize outstanding research by early career investigators. The basis for evaluation of candidates is a single publication in a peer-reviewed journal. The award includes a plaque and a travel honorarium to be applied toward travel to SLEEP 2013. Click here for more information on application requirements. Applications are due to the SRS national office by February 1, 2013.

SRS Undergraduate Trainee Travel Award Offered for SLEEP 2013
In an effort to reach out to outstanding Undergraduate Trainees, the SRS will again sponsor the Undergraduate Travel Award Program to support attendance at SLEEP 2013, the 27th Annual Meeting of the Associated Professional Sleep Societies (APSS) in Baltimore, Maryland. Applications for this award are due Monday, February 11, 2013. For more information on the SRS Undergraduate Travel Award click here.

First Time Trainee Travel Awards Offered for SLEEP 2013
The SRS will be offering travel awards to help offset travel expenses for SLEEP 2013 to SRS Trainees who have not previously attended a SLEEP Annual Meeting of the APSS. Click here for more details on how to apply for this award. Applications for this award are due Monday, February 11, 2013.

Renew Your SRS Membership for 2013
You can now renew your Sleep Research Society (SRS) 2013 membership online! Renew today to continue receiving a complimentary subscription to SLEEP, opportunities for education and training, members only discounts on professional resources, national representation, and much more!

To renew your membership, log in or register an account on the SRS website and submit an online payment. Renewal invoices were mailed to members in late November and are currently available for download online, giving you the option of renewing via mail or fax.

Please contact the SRS membership department with questions regarding your membership at 630-737-9756 or SRSMembership@srsnet.org.

November 2012 NICHD Director’s Podcast Features
Sleep Topics
The November NICHD Director’s podcast features presenters from a recent NICHD Exchange program, “Sleep: the ABC’s of Zs.” The NICHD Exchange is a series of quarterly meetings in which NICHD administrators and scientists present relevant findings designed to spur thought provoking conversations to inform the NICHD research effort. For the November podcast, four guests discussed aspects of sleep research pertaining to the NICHD mission. Recapping their talks from the recent Exchange were: David Klein of the Division of Intramural Research, who described the genetic factors governing sleep, Caroline Signore of the Pregnancy and Perinatology Branch, who reviewed the literature on sleep and pregnancy, Lynne Haverkos, of the Child Development and Behavior Branch, who reviewed the research literature on how sleep influences child and adolescent development, and Paul Albert, of the Division of Epidemiology, Statistics, and Prevention Research: who described the statistical methods used to inform an ongoing NICHD study involving adolescent sleep patterns and other aspects of adolescent health.

The November podcast is available at http://www.nichd.nih.gov/about/overview/directors_corner/podcasts/Documents/NICHD_Research_Perspectives_113012.mp3 and the transcript at http://www.nichd.nih.gov/about/overview/directors_corner/podcasts/Pages/transcript_perspectives_113012.aspx.

Education Research in Sleep Health and Sleep-Circadian Biology (R25)
This Funding Opportunity Announcement (FOA) issued by the National Heart, Lung, and Blood Institute and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) invites the submission of Education Research (R25) grant applications focused on scientific advances in sleep health and circadian and sleep biology.

The final submission date for the FOA is February 1, 2013. For more information about the RFA, please click on the following link: http://grants.nih.gov/grants/guide/pa-files/par-11-098.html

Editorial on Obtaining a NHLBI K08 and K99/R00 Award
The journal Circulation Research recently published an article by Steven Hauser, “How to obtain a National Heart, Lung, and Blood Institute-sponsored K08 and K99/R00 grant in the current funding climate.” This is a great resource for SRS members looking to apply for a K Award. You can access the article through the National Library of Medicine.

Tips from NIH for Reviewing Your Summary Statement & Resubmitting an Application
Sally Rockey, PhD, NIH Deputy Director for Extramural Research recently posted valuable information on her blog for investigators, especially junior investigators, on how to interpret your NIH Summary Statements and steps you should take if your grant application was not funded and you are thinking about resubmitting it to NIH. Click here to view the blog post.

Continued on the following page →
SRS Member Ralph Lydic, PhD Receives Prestigious Award
On October 15, 2012 the American Society of Anesthesiologists (ASA) presented Ralph Lydic, PhD with its 2012 ASA Excellence in Research Award at the ANESTHESIOLOGY™ 2012 annual meeting in Washington, D.C.
Dr. Lydic has focused his research efforts on three primary areas, including arousal state-dependent respiratory depression, sleep and pain, and the neurochemical control of sleep and anesthesia. Since 1988, Dr. Lydic’s research has been continuously funded by grants from the National Heart, Lung, and Blood Institute. Dr. Lydic is a past President and long-time member of the SRS.
The SRS congratulations Dr. Lydic on receiving this prestigious award!

SRS Member Clifford Saper, MD, PhD, Named Editor of the Annals of Neurology
SRS past President Clifford Spaer, MD, PhD was recently named editor of the journal the Annals of Neurology during the annual meeting of the American Neurological Association in Boston, MA. Dr. Saper will begin his new role as Editor-in-Chief on January 1, 2014. The Annals of Neurology is co-owned by the American Neurological Association and the Child Neurology Society.
The SRS congratulates Dr. Saper on his tremendous accomplishment.

NIH Funding Announcements

Ancillary Studies in Clinical Trials (R01) (RFA-HL-14-004)
NHLBI invites research grant applications to conduct time-sensitive ancillary studies related to heart, lung, and blood diseases and sleep disorders in conjunction with ongoing clinical trials and other large clinical studies supported by NIH or non-NIH entities.
NOTE: This RFA requires a compelling and transparent rationale to justify the expedited review under this program.

Secondary Dataset Analyses in Heart, Lung, and Blood Diseases and Sleep Disorders (R21)
The National Heart, Lung, and Blood Institute (NHLBI) invites R21 applications for well-focused secondary analyses of existing human datasets to test innovative hypotheses concerning the epidemiology, pathophysiology, prevention or treatment of diseases/conditions highly relevant to the NHLBI mission. Applicants may use data from a variety of sources, including, but not limited to, investigator-initiated research activities, contracts from public or private sources, administrative data bases, the NHLBI BioLINCC resource (https://biolincc.nhlbi.nih.gov/home/).

Alcohol Abuse, Sleep Disorders and Circadian Rhythms (R21/R01)
The National Institute on Alcohol Abuse and Alcoholism (NIAAA), invites R21 and R01 applications proposing to conduct studies on the functional relationships between alcohol abuse, circadian rhythms and sleep disorders. Collaborative efforts between experts in circadian and/or sleep research and established alcohol investigators to facilitate the development of proposals incorporating both areas of research are encouraged.
These announcements include special programmatic considerations. It is critical that applicants considering the possibility of developing an application carefully read the full text of the announcement and consult with the listed NIAAA staff contact.

Functional Assays to Screen Genomic Hits (R21/R33)(RFA-HL-13-027)
National Heart, Lung, and Blood Institute (NHLBI) invites applications to conduct functional analyses of identified genetic variations related to heart, lung, blood and sleep phenotypes, using amenable in vitro or animal model systems. Exploratory/Developmental Phased Innovation (R21/R33) grant applications should identify and justify the genetic variants that they propose to test for functionality, the phenotype(s) the variants are associated with, and the functional measures that will be used to validate them. This FOA provides support for two years (R21 phase) for research planning activities and feasibility studies, followed by possible transition of up to three years of expanded research support (R33 phase).

NHLBI Clinical Trial Pilot Studies (R34) (PAR-13-002)
NHLBI invites applications proposing pilot studies to obtain data critical for the design of robust clinical trials. This Funding Opportunity Announcement (FOA) should be used to fill gaps in scientific knowledge necessary to develop a competitive full-scale clinical trial. Proposals that primarily aim to organize studies would not be responsive.

Exploratory/Developmental Bioengineering Research Grants (EBRG) [R21] (PA-12-284)
Exploratory/Developmental Bioengineering Research Grants (EBRG) establish the feasibility of technologies, techniques or methods that: 1) explore a unique multidisciplinary approach to a biomedical challenge; 2) are high-risk but have a considerable pay-off; and 3) develop data which can lead to significant future research.
An EBRG application may propose hypothesis-driven, discovery-driven, developmental, or design-directed research and is appropriate for evaluating unproven approaches for which there is minimal or no preliminary data.
molecular “gears” that make our biological clocks tick as well as components that link the clock to the “hands” that control sleep and wake. This work has supported a model that at the core of circadian clocks are transcriptional feedback loops whose components are modified by phosphorylation to set the pace of the clock. Our most recent work has focused on a new pathway involving protein synthesis (or translation) by which clocks keep time. Remarkably, many aspects of this clock are conserved in humans. We have also been investigating links between circadian clocks and outputs such as metabolism, neurodegeneration, aging, and sleep. We are also extending our molecular approach to mice and humans.

2. Molecular Genetics of Sleep Homeostasis
The function of any homeostatic system can be determined by identifying the precise substances that are sensed and controlled within a narrow range. Remarkably, flies exhibit hours long periods of inactivity (~14 hours/day) with many of the cardinal features of sleep, including immobility, unresponsiveness, and homeostasis. To identify the molecules that reflect waking experience and are sensed by the sleep homeostat to trigger sleep, we are isolating mutants in Drosophila that disrupt sleep homeostasis. We have employed novel thermogenetic tools to elucidate the neural circuits important for sleep homeostasis and identified a role for the mushroom bodies as crucial sleep promoting centers. These neural structures are known for their role in processing short and long-term memories in the fly, processes that are also enhanced by sleep in humans. We have also employed large-scale genome-wide screens to isolate a mutant, termed insomniac that sleeps just 4 hours per day and fails to exhibit a homeostatic response to sleep deprivation. By studying this mutant and others like it, we have defined the neurotransmitters and molecular pathways that may reveal why we sleep.

Technical Capacities
Drosophila genetics, genomics, proteomics, molecular biology, biochemistry, electrophysiology, neuroanatomy, sleep and circadian behavior.

Training Opportunities
Students interested in joining the laboratory as a postdoctoral fellow should e-mail to r-allada@northwestern.edu a letter of interest including a CV, research interests, and names of three references.

Recent Publications

Continued on the following page →


Background

The Chronobiology and Sleep Laboratory (CSL) was established in 2009, as part of the Neuroscience and Behavioral Disorders program at Duke-NUS Graduate Medical School (GMS). We are located in the small city-country of Singapore, which has become a vibrant hub for biomedical research. In the CSL, we conduct research on human sleep and circadian rhythms, with the aim of developing new treatments and diagnostic tests for sleepiness and sleep disorders. The CSL is located in the SingHealth Investigational Medicine Unit, which is a clinical trials unit in Singapore General Hospital. The research team is headed by Dr. Joshua Gooley, who was a former trainee in sleep research in the Division of Sleep Medicine at Harvard Medical School.

Research Focus

1. Non-visual photoreception

In mammals, circadian phase-resetting responses are mediated by melanopsin-containing retinal ganglion cells. Melanopsin cells are intrinsically photosensitive, but also receive light input from rod-cone photoreceptors. We are systematically examining the relative roles of melanopsin and rods/cones in mediating non-visual light responses including the pupillary light reflex, melatonin suppression, and circadian phase shifting. A long-term goal of this research is to improve the efficacy of light therapy for treatment of circadian rhythm sleep disorders. We also recently initiated a pair of studies designed to test whether cognitive performance during simulated shift work can be improved by manipulating the lighting environment. This work is supported by the Singapore National Medical Research Council and the Defense Research and Technology Office.

2. Individual differences in responses to sleep deprivation

Some people show severe cognitive deficits during sleep deprivation, whereas others are able to maintain high levels of alertness and performance. Individual differences in cognitive vulnerability to sleep loss are trait-like, but the underlying mechanisms are poorly understood. In a series of studies, we are examining potential behavioral and physiologic markers that associate with relative vulnerability to sleep deprivation. We are testing the hypothesis that small individual differences in cognitive instability that are present at baseline are amplified during prolonged wakefulness, thus giving rise to large between-subjects differences in performance and sleepiness. This work is supported by the Duke-NUS Signature Research Program funded by A*STAR and the Ministry of Health, Singapore; and the SingHealth Foundation.

3. Sleep during pregnancy and across different ethnic groups

As part of a longitudinal birth cohort study in Singapore (GUSTO, Growing Up in Singapore Towards Healthy Outcomes), we are examining the impact of sleep quality and short duration sleep on antenatal health. In preliminary studies, we have found a strong relationship between sleep quality and total daily sleep on antenatal health. In preliminary studies, we determine whether ethnic differences in parent-reported infant sleep are due to biological and/or cultural and socioeconomic factors, and whether such differences impact child development. This work is supported by the Metabolic Diseases TCR program, National Medical Research Council, Singapore.

Technical Capabilities

The CSL has two research suites designed for long-term physiological monitoring of human research subjects, and a central control room. The laboratory is purpose-built for chronobiology studies; hence each room is shielded from external time cues, but is otherwise like a small studio apartment. In a typical study, we are testing the hypothesis that small individual differences in cognitive instability that are present at baseline are amplified during prolonged wakefulness, thus giving rise to large between-subjects differences in performance and sleepiness. We are also examining the relationship between short sleep duration and gestational diabetes. In the same cohort, we are examining ethnic differences in sleep characteristics in infants. Our preliminary data indicate that ethnic-Chinese babies have earlier bedtimes and more total daily sleep than Indian and Malay infants. We hope to determine whether ethnic differences in parent-reported infant sleep are due to biological and/or cultural and socioeconomic factors, and whether such differences impact child development. This work is supported by the Metabolic Diseases TCR program, National Medical Research Council, Singapore.

Continued on the following page →
electrocardiogram. As such, our laboratory is equipped to carry out research on sleep deprivation and its effects on human performance and physiology, and to evaluate the efficacy of phase shifting interventions on circadian rhythms.

**Training Opportunities**
We welcome students and post-graduates to apply who are interested in pursuing research in sleep medicine. To date, we have trained one post-doctoral research fellow, one medical student, two graduate students, and four undergraduate students. Most of our trainees hail from local universities in Singapore, but we have also hosted students from other countries. The CSL can take graduate students from the Duke-NUS GMS graduate program, as well as the National University of Singapore.

**Publications and Selected Abstracts:**
2. Chua CP, Tan WQ, Yeo SC, Lau P, Lee I, Ho I, Puvanendran K, Gooley JJ (2012) Heart rate variability can be used to estimate sleepiness-related decrements in psychomotor vigilance during total sleep deprivation. Sleep. 35(3):325-34.
4. Choo R et al. Relationship between sleep quality and mood disturbances in expecting mothers during the second trimester. Developmental Origins of Health & Disease 7th World Congress (DOHaD). 2011; Sep 18-21; Portland, OR, USA.
Anne-Marie Chang, PhD
Instructor in Medicine,
Harvard Medical School (HMS)
Associate Neuroscientist,
Brigham and Women’s Hospital (BWH)

Dr. Chang received her PhD from the Northwestern University Institute for Neuroscience, where she trained with Drs. Joseph Takahashi and Phyllis Zee. Her research efforts focused on the physiologic and genetic characterization of sleep and circadian biology including: 1) identification and characterization of molecular genetic mechanisms of the mammalian circadian clock, 2) physiologic evaluation of human sleep and circadian rhythm phenotypes including Advanced Sleep Phase (ASP) and Delayed Sleep Phase (DSP), and 3) genetic mapping of loci underlying the sleep disorder familial ASPS.

Dr. Chang completed her postdoctoral training in the Division of Sleep Medicine of Harvard Medical School and the Brigham and Women’s Hospital in the laboratory of Dr. Charles Czeisler. Her clinical research examined the effects of light on circadian rhythms, sleep physiology, and neurobehavioral function; and the genetic influence on well-characterized circadian and sleep phenotypes.

Currently Dr. Chang is an Instructor in the Division of Sleep Medicine. She recently was awarded both the BWH Faculty Career Development Award and a Mentored Career Development Award (K01) from the NIH/NHLBI entitled “Effect of Circadian Gene Variants on Sleep, Obesity, and Metabolic Phenotypes.” The research goal of this project is to investigate the role of candidate genetic variants on sleep behavior, obesity and cardio-metabolic outcome measures across the lifespan using a candidate gene approach in multiple, large cohorts. Co-mentors include Drs. Susan Redline (BWH, Sleep Medicine Epidemiology Program) and Richa Saxena (Massachusetts General Hospital, Center for Human Genetics Research; and the Broad Institute, Medical and Population Genetics Program). The overall goal of the K-award project is to obtain training in advanced genetic and epidemiological biostatistics to address the research aims and further develop Dr. Chang’s independent research program.

Michael A. Grandner, PhD
Instructor in Psychiatry,
University of Pennsylvania
Member, Center for Sleep and Circadian Neurobiology, University of Pennsylvania

Dr. Grandner received a BA in Clinical and Social Sciences in Psychology from the University of Rochester, where he trained with Drs. Michael Perlis and Donna Giles at the Rochester Sleep and Neurophysiology Research Lab. He went on to earn a PhD in Clinical Psychology from the Joint Doctoral Program in Clinical Psychology at San Diego State University and University of California, San Diego. There, he worked in the Circadian Pacemaker Lab under Dr. Daniel Kriple, on a number of studies. His graduate work focused on home-based studies using bright light therapy for non-seasonal depression in older adults, as well as analyses of data from the Women’s Health Initiative and Sleep in America Poll, examining how habitual sleep and light exposure are related to health and well-being. While in San Diego, he worked on projects examining neuropsychological function associated with sleep apnea in dementia (with Dr. Sonia Ancoli-Israel) and describing long sleepers (with Dr. Sean Drummond).

Dr. Grandner completed an AASM-accredited Behavioral Sleep Medicine postdoctoral fellowship at the University of Pennsylvania, under the clinical supervision of Drs. Philip Gehrman (adult) and Jodi Mindell (pediatric). This fellowship was part of a larger fellowship program directed by Dr. Allan Pack. Under Dr. Pack’s supervision (with help from Dr. Gehrman, Dr. Karen Teff, and Dr. Perlis, who had relocated to Penn from Rochester), Dr. Grandner’s research focused on cardiometabolic, psychological, and behavioral effects of short sleep duration. In addition, under the guidance of Drs. Terri Weaver and Nalaka Gooneratne, and in collaboration with Dr. Nirav Patel, Dr. Grandner also examined population-level trends associated with sleep health.

Currently, Dr. Grandner is an Instructor in the Division of Mood and Anxiety Disorders in the Department of Psychiatry, which is home to the Behavioral Sleep Medicine Program directed by Dr. Perlis. He is also a member of the Center for Sleep and Circadian Neurobiology, directed by Dr. Pack. He was recently awarded a Scientist Development Grant from the American Heart Association, which has since been superseded by a Mentored Patient-Oriented Career Development Award (K23) from the NIH (NHLBI) entitled, “Cardiovascular and Metabolic Risk Factors Associated with Short Sleep Duration.” The primary goal of this project is to investigate cardiometabolic risk factors associated with short sleep duration in the context of behavioral impairments and potential subgroups among short sleepers. The diverse mentorship committee for this project includes Dr. Pack (primary mentor), Dr. Perlis (secondary mentor), Dr. Teff (metabolism), Dr. Raymond Townsend (cardiovascular), and Dr. Muredach Reilly (biomarkers). Dr. Grandner was also recently awarded an Exploratory/Developmental Research Grant (R21) from the NIH (NIEHS) entitled, “Sleep and Health in the Social Environment.” This project is aimed at identifying environmental, social and behavioral determinants of sleep duration in the general population.

These projects serve to set the stage for the development of Dr. Grandner’s research program – to study the health effects of habitual short sleep and develop and implement behavioral interventions for those that need them. This includes developing a better understanding of short sleeper phenotypes, understanding the role of sleep in health disparities, and identifying the mechanistic pathways by which short sleep exerts adverse effects on health in a “real world” setting.
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 website ([www.sleepresearchsociety.org](http://www.sleepresearchsociety.org)).

### FULL MEMBERS

<table>
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<th>Name</th>
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### CORRESPONDING MEMBERS

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### POSTDOCTORAL FELLOWS

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<td>Bethesda, MD</td>
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NEW MEMBERS

PREDOCTORAL STUDENTS

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Katie C. Appleyard  University of Otago, Dunedin, New Zealand
Jessica C Balderas  Houston, TX
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Yu Sun Bin  Brain & Mind Research Institute, University of Sydney, Camperdown, NSW Australia
Jessica B. Calihan  Boulder, CO
Stephanie A. Centofanti  Centre for Sleep Research, University of South Australia, Adelaide, SA Australia
Marissa Cieply  Western Psychiatric Institute and Clinic, Pittsburgh, PA
Michelle A. Clementi  Houston, TX
Tyler S. Conrad  University of Pittsburgh Medical Center, Pittsburgh, PA
Jennifer Cowie  Houston, TX
Jessica R. Dietch  Denton, TX
Katherine A. Duggan  University of California, Riverside, CA
Sommer Ebdelahad  Pittsburgh, PA
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Zhao Fang, PhD  Philadelphia, PA
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Gorica Micic  Flinders University, Adelaide, SA Australia
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Genevieve Scavone  Hopital du Sacre-Coeur de Montreal, Montreal, QC Canada
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Hy Katy Siu  Audubon, PA
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Marissa Swanson  Veterans Sleep Studies, Pittsburgh, PA
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Rebekah C. Tribble  Boulder, CO
Rohan Vaidya  Toledo, OH
Jessica I. Wooden  Houston, TX
Danielle N. Zambrano  Philadelphia, PA

UNDERGRADUATE STUDENTS

Margaret R. Doucette  Boulder, CO
Vania Duxbury  University of the Witwatersrand, Johannesburg, Gauteng South Africa
Karissa Fyfe  The Ritchie Centre, Clayton, VIC Australia
Anna L. Hemp  Spokane, WA
Jeremie Lefrancois  Quebec, QC Canada
Arilda Margjoni  Gainesville, FL
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Amy Sparrow  Washington State University Spokane, DC