


YOUNG INVESTIGATORS
RESEARCH FORUM



Preparing Your NIH Biosketch: What, Why, and How

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Professor of Psychiatry and Clinical and Translational Science
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AASIM | FOUNDATION

Conflict of Interest Disclosures for Speakers

1. I do not have any relationships with any entities **producing, marketing, re-selling, or distributing** health care goods or services consumed by, or used on, patients, **OR**
2. I have the following relationships with entities **producing, marketing, re-selling, or distributing** health care goods or services consumed by, or used on, patients.

| Type of Potential Conflict | Details of Potential Conflict |
|----------------------------|--|
| Grant/Research Support | NIH |
| Consultant | Bayer, BeHealth Solutions, Cereve/Ebb Therapeutics, Emmi Solutions, Pear Therapeutics, Weight Watchers International |
| Speakers' Bureaus | None |
| Financial support | None |
| Other | Licensing fees: Pittsburgh Sleep Quality Index (PSQI), Daytime Insomnia Symptoms Scale (DISS), Insomnia Symptoms Questionnaire (ISQ), Consensus Sleep Diary (CSD), SATED and RU_SATED Scales |

3. The material presented in this lecture has no relationship with any of these potential conflicts, **OR**
4. This talk presents material that is related to one or more of these potential conflicts, and the following objective references are provided as support for this lecture:

LEARNING OBJECTIVES

At the conclusion of this course, attendees should be able to...

1. State WHAT an NIH Biosketch is and is not
2. State WHY and NIH Biosketch is important
3. Understand HOW to construct an NIH Biosketch

NIH Scientific Review (Toni Scarpa, former CSR Director)

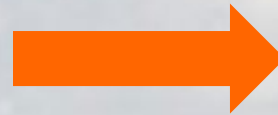
Is it worth doing?

- Impact
- Significance
- Innovation



Can they do it?

- Investigators
- Approach
- Environment



NIH Biosketch: **WHAT** is it?

- Summary of your...
 - Education and training
 - “Fit” for the specific project proposed
 - Positions and honors
 - Contributions to science
 - Research grant support
- Succinct: 5 pages maximum
- Structured



NIH Biosketch: What it's NOT

- A single thing (“Can you send me a copy of your biosketch?”)
- A static document that you keep on file
- *Pro tip: Create a new NIH Biosketch for each project*

NIH Biosketch: **WHY** do it?

- You have to (it's required)

NIH Biosketch: **WHY** do it **WELL**?



Photo by [Dino Reichmuth](#) on [Unsplash](#)

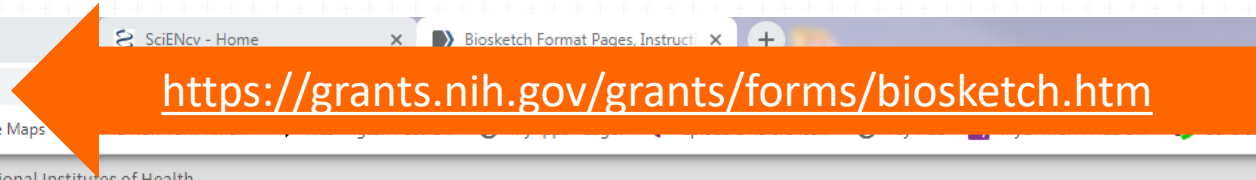
- Your opportunity to shine!
- Showcase your background, experience, and accomplishments
- Demonstrates that you care about the details

NIH Biosketch: WHY do it WELL?

- It can **help**
 - R series grants (research projects) don't have a required section about the investigators
 - Reviewers may wonder about your experience and expertise with the proposed methods
 - Highlight collaborations
- It can **hurt** (if not done well)
 - Mismatch of training/expertise with scientific approach
 - *A biosketch that is not tailored to the specific application can lose reviewers' goodwill*

NIH Biosketch: **HOW** to do it

- Look at examples from experienced colleagues
- Create your own
 - NIH instructions: <https://grants.nih.gov/grants/forms/biosketch.htm>
 - Create biosketch using Science Experts Network Curriculum Vitae (SciENcv): <https://www.ncbi.nlm.nih.gov/sciencv/>
 - Create, update your bibliography:
<https://www.ncbi.nlm.nih.gov/myncbi/collections/mybibliography/>
- Modify your Biosketch for each project you submit



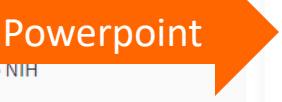
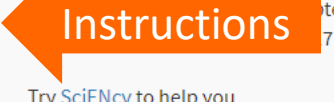
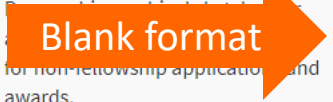
ABOUT GRANTS

- Grants Process Overview
- Get Started +
- How to Apply +
- Application Referral and Review +
- Pre-Award and Post-Award Processes +
- Forms Library
- Information For +

Biosketch Format Pages, Instructions and Samples

Biosketches are required in both competing applications and progress reports. Find instructions, blank format pages, and sample biosketches below. Try SciENcv, a tool supporting multiple research agencies, to help you develop your biosketch and automatically format it according to NIH requirements.

| Form Name | Form Number | Description | How to Access | Instructions | Additional Information | Updated Date |
|--|-------------|---|---|--|--|----------------|
| Biographical Sketch Format Page (non-fellowship) | | Prepare biographical sketches for non-fellowship applications and awards. | Blank format page: Non-fellowship Biosketch | Instructions: Non-fellowship Biosketch | Try SciENcv to help you develop your biosketch and automatically format it according to NIH requirements. | September 7 |
| Biographical Sketch Format Page (fellowship) | | Prepare biographical sketches for applications and progress reports for fellowship applications and awards. | Blank format page: Fellowship Biosketch | Instructions: Fellowship Biosketch | SAMPLE: Predoctoral Fellowship Biosketch SAMPLE: Postdoctoral Fellowship Biosketch Try SciENcv to help you develop your biosketch and automatically format it according to NIH requirements. | September 2017 |



FAQs on Biosketch Format Pages, Instructions and Samples

RELATED RESOURCES

- NIH Biosketch Presentation (pptx - 2.6MB)
- How to Apply - Application Guide
- Research Performance Progress Report (RPPR)

Technical Issues: E-mail OER Webmaster

NIH Biosketch Blank Format

- Basic information
- Education & Training
- Positions and Honors
- Research Support

OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME:

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE:

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

| INSTITUTION AND LOCATION | DEGREE <i>(if applicable)</i> | Completion Date MM/YYYY | FIELD OF STUDY |
|--------------------------|----------------------------------|----------------------------|----------------|
| | | | |

A. Personal Statement

B. Positions and Honors

C. Contributions to Science

D. Additional Information: Research Support and/or Scholastic Performance

- Personal Statement
- Contributions to Science



Education/Training

- Begin with baccalaureate or other initial professional education, such as nursing. Include postdoctoral, residency, and clinical fellowship training, as applicable, listing each separately.
- For each entry provide:
 - the name and location of the institution
 - the degree received (if applicable)
 - the month and year of end date (or expected end date). For fellowship applicants only, also include the month and year of start date.
 - the field of study (for residency entries, the field of study should reflect the area of residency training)



A. Personal Statement

- *Briefly describe why you are well-suited for your role(s) in this project.* Relevant factors may include:
 - training
 - previous experimental work on this specific topic or related topics
 - technical expertise
 - collaborators or scientific environment
 - past performance in this or related fields
- Cite **up to four publications or research products** that highlight your experience and qualifications for this project.
 - Can also include: Audio or video products; conference proceedings (abstracts, posters, presentations); patents; data and research materials; educational aids or curricula; models; protocols; and software or netware.



A. Personal Statement

- For ALL applicants/candidates:
 - You may address **factors that affected your past productivity**, such as family care responsibilities, illness, disability, or military service
 - Indicate whether you have published or created research products **under another name**.
 - You may mention specific contributions to science that are not included in Section C.
 - Do not present or expand on materials that should be described in other sections of this Biosketch or application.
 - Figures, tables, or graphics are not allowed.
- For specific subsets of applicants/candidates:
 - Candidates for **research supplements to promote diversity in health-related research** should also include a description of their general scientific achievements and/or interests, specific research objectives, and career goals. Indicate any current source(s) of educational funding.



B. Positions and Honors

- List in chronological order **positions relevant to this application**, concluding with your present position
- List any relevant academic and professional **achievements and honors**:
 - Scholarships, traineeships, fellowships, and development awards, as applicable.
 - Clinical licensures and specialty board certifications



C. Contributions to Science

- Briefly describe **up to five of your most significant contributions** to science. The description of each contribution should be no longer than one half page, including citations.
- Graduate students and postdoctoral scholars may wish to consider highlighting two or three they consider most significant.
- For each contribution, indicate
 - the historical background that frames the scientific problem
 - the central finding(s)
 - the influence of the finding(s) on the progress of science or the application of those finding(s) to health or technology
 - your specific role in the described work



C. Contributions to Science

- For each contribution, you may cite **up to four publications or research products** that are relevant to the contribution
- While you may mention manuscripts that have not yet been accepted for publication as part of your contribution, you may **cite only published papers** to support each contribution
- You may provide a **URL to a full list of your published work**
 - URL **must be to a Federal Government website** (a .gov suffix). NIH recommends using [My Bibliography](#). Providing a URL to a list of published work is not required.
- Descriptions of contributions may include a mention of research products under development, such as manuscripts that have not yet been accepted for publication. These contributions do not have to be related to the project proposed in this application.



D. Additional Information: Research Support

- List **ongoing and completed research projects** from the past three years that you want to draw attention to
 - Briefly indicate the overall goals of the projects and your responsibilities.
- "Research Support" ≠ "Other Support"
 - **Research Support** (part of Biosketch): Highlights your/colleagues accomplishments as scientists. Used by the reviewers to assess your qualifications for a specific role in the proposed project, and to evaluate the overall qualifications of the research team.
 - **Other Support** (not part of Biosketch): NIH staff may request complete and up-to-date "other support" information from you as part of Just-in-Time information prior to potential funding of an application



ABOUT GRANTS

Grants Process Overview

Get Started

How to Apply


Application Referral and Review

Pre-Award and Post-Award Processes

Forms Library

Information For

Biosketch Format Pages, Instructions and Samples

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| Form Name | Form Number | Description | How to Access | Instructions | Additional Information | Updated Date |
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FAQs on Biosketch Format Pages, Instructions and Samples

RELATED RESOURCES

- [NIH Biosketch Presentation \(pptx - 2.6MB\)](#)
- [How to Apply - Application Guide](#)
- [Research Performance Progress Report \(RPPR\)](#)

Technical Issues: [E-mail OER Webmaster](#)



SciENcv: Science Experts Network Curriculum Vitae

A researcher profile system for all individuals who apply for, receive or are associated with research investments from federal agencies. SciENcv is available in My NCBI.

- ### About SciENcv
- [Background Information](#)
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 - [YouTube Video: SciENcv tutorial](#)
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 - [Recent Changes to NIH Biosketch](#)
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- ### Interfacing with SciENcv
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- ### News and Resources
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Click here to start!

You are here: MyNCBI > SciENcv > SciENcv: Science Experts Network Curriculum Vitae Support Center

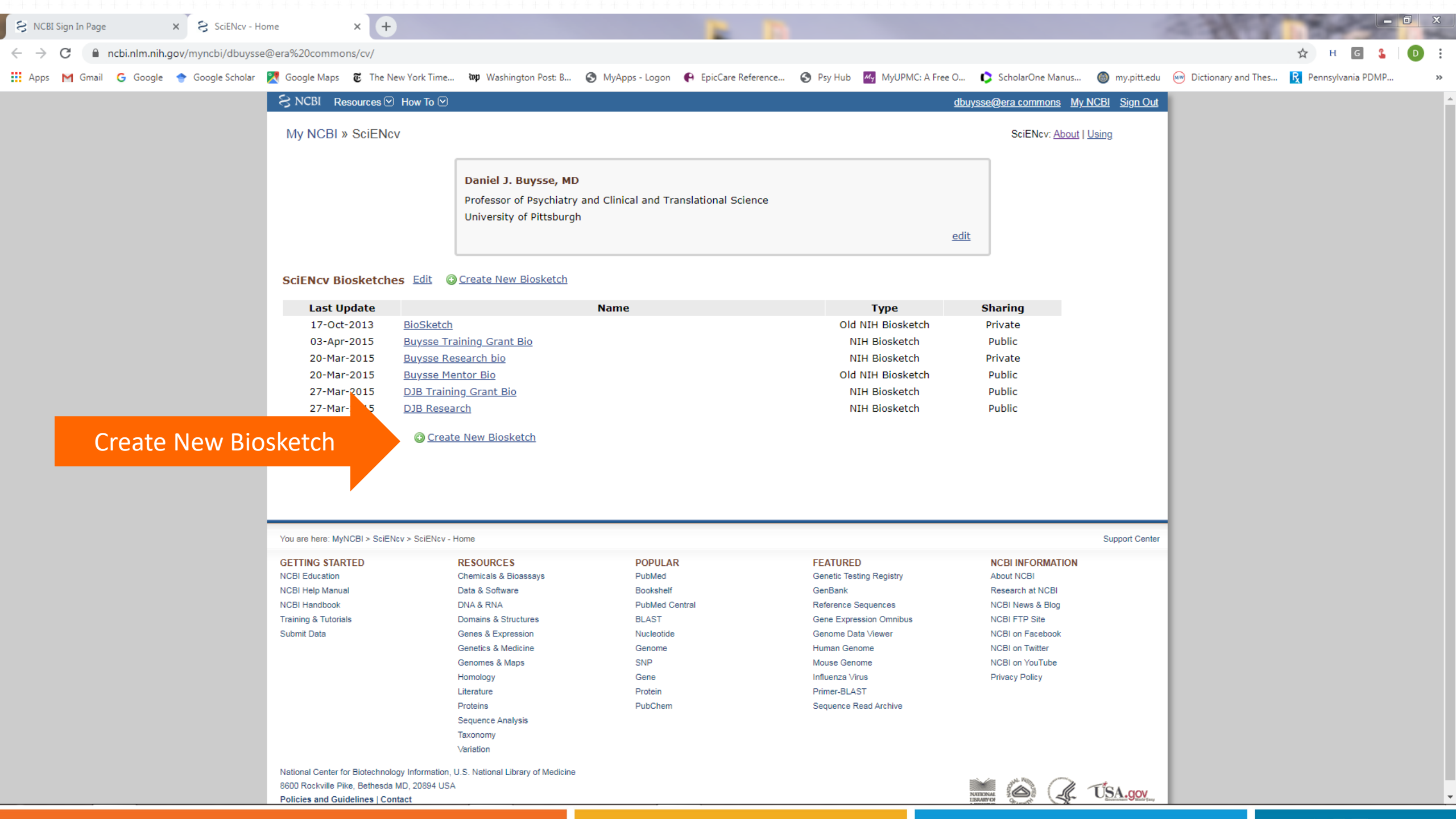
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 - Training & Tutorials
 - Submit Data

- #### RESOURCES
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 - Data & Software
 - DNA & RNA
 - Domains & Structures
 - Genes & Expression
 - Genetics & Medicine
 - Genomes & Maps
 - Homology
 - Literature
 - Proteins
 - Sequence Analysis
 - Taxonomy
 - Variation

- #### POPULAR
- PubMed
 - Bookshelf
 - PubMed Central
 - BLAST
 - Nucleotide
 - Genome
 - SNP
 - Gene
 - Protein
 - PubChem

- #### FEATURED
- Genetic Testing Registry
 - GenBank
 - Reference Sequences
 - Gene Expression Omnibus
 - Genome Data Viewer
 - Human Genome
 - Mouse Genome
 - Influenza Virus
 - Primer-BLAST
 - Sequence Read Archive

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Daniel J. Buysse, MD
Professor of Psychiatry and Clinical and Translational Science
University of Pittsburgh

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SciENcv Biosketches [Edit](#) [Create New Biosketch](#)

| Last Update | Name | Type | Sharing |
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| 17-Oct-2013 | BioSketch | Old NIH Biosketch | Private |
| 03-Apr-2015 | Buysse Training Grant Bio | NIH Biosketch | Public |
| 20-Mar-2015 | Buysse Research bio | NIH Biosketch | Private |
| 20-Mar-2015 | Buysse Mentor Bio | Old NIH Biosketch | Public |
| 27-Mar-2015 | DJB Training Grant Bio | NIH Biosketch | Public |
| 27-Mar-2015 | DJB Research | NIH Biosketch | Public |

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- [Mouse Genome](#)
- [Influenza Virus](#)
- [Primer-BLAST](#)
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- [NCBI on YouTube](#)
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Create a New Biosketch

Biosketch name

Enter a name to help you to identify this biosketch

Format

- NIH Biosketch
- NIH Fellowship Biosketch
- NSF Biosketch
- IES Biosketch

Select a format for this biosketch

Choose data source

- Start with a blank document
- Existing Biosketch:
- External source:

Your eRA Commons account is linked to SciENcv.

Sharing

- Private
- Public

You can change the shared settings at any time.

Create

Cancel

You are here: MyNCBI > SciENcv > Create new biosketch

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Profile name: Example [[Edit](#)]

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Profile type: NIH BioSketch [NIH Biographical Sketch Instructions \(PDF\)](#)

Last Updated: 30 December 2019

Sharing: Private [[Change](#)]

NAME [[Edit](#)]

Buysse, Daniel

[Click here to link eRA Commons account](#)

EDUCATION/TRAINING

(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)

You have not listed any degree or training. Please [add one](#).

A. Personal Statement [[Edit statement](#)]

You have not yet provided a personal statement.

Optional: You may identify up to four peer reviewed publications that specifically highlight your experience and qualifications for this project.

[[Select citations](#)]

You have not listed any citations.

B. Positions and Honors

Positions and Employment

You have not listed any employment. Please [add one](#).

Other Experience and Professional Memberships

Instructions

Basic information

Education & Training

Personal Statement

Positions and Honors



Positions and Honors

B. Positions and Honors

Positions and Employment

You have not listed any employment. Please [add one](#).

Other Experience and Professional Memberships

You have not listed any professional memberships. Please [add one](#).

Honors

You have not listed any honors. Please [add one](#).

Contributions to Science

C. Contribution to Science [[Edit section](#)]

This section is currently empty. Click on edit section to add your contributions.

Research Support

D. Additional Information: Research Support and/or Scholastic Performance [[Edit awards](#)]

There are no awards linked to this profile. Please edit the list to see available awards.

Download: [PDF](#) [Word](#) [XML](#)

<https://www.ncbi.nlm.nih.gov/myncbi/>

My NCBI

National Center for Biotechnology Information

Search NCBI databases

Search: PubMed

Search

Hint: clicking the "Search" button without any terms listed in the search box will transport you to that database's homepage.

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Your bibliography contains 407 items.

Share your bibliography with this URL:

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Recent Activity

| Time | Database | Type | Term |
|-------------|----------|--------|--|
| 09:08 AM | PMC | record | Sacral Insufficiency Fracture, Usua... |
| 03-Dec-2019 | PMC | record | Evaluation of the reliability and v... |
| 27-Nov-2019 | PubMed | record | Estimation of the global prevalence... |
| 27-Nov-2019 | PubMed | record | Sleep Apnea and Cardiovascular Dise... |
| 27-Nov-2019 | PubMed | record | Association of Positive Airway Pres... |
| 27-Nov-2019 | PubMed | search | Similar articles for PubMed (Select... |
| 27-Nov-2019 | PubMed | record | Easy-to-build and affordable contin... |
| 26-Nov-2019 | PMC | record | The American Academy of Sleep Medic... |
| 25-Nov-2019 | PubMed | record | Effects of food on the pharmacokine... |
| 25-Nov-2019 | PubMed | record | From ideas to efficacy: The ORBIT m... |

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Saved Searches

| Search Name | What's New | Last Searched |
|--|------------|---------------|
| PubMed Searches | | |
| Buysse-Pubmed articles | 137 | 6 years ago |

[Manage Saved Searches >](#)

Collections

All bibliographies and Other citations are now in [My Bibliography](#).

| Collection Name | Items | Settings/Sharing | Type |
|---|------------------------|------------------|----------|
| Favorites | edit 2 | Private | Standard |
| Other Publications T32 2014 | edit 5 | Private | PubMed |

[Manage Collections >](#)

Filters

Filters for: Protein (3 active)

| Active | Name | Type |
|-------------------------------------|-----------------------------|-----------------|
| <input checked="" type="checkbox"/> | Bacteria | Standard filter |
| <input checked="" type="checkbox"/> | Links to Related Structures | Standard filter |
| <input checked="" type="checkbox"/> | RefSeq | Standard filter |

[Manage Filters >](#)

SciENcv






| Name | Last Update | Sharing | Type |
|---|-------------|---------|-------------------|
| BioSketch | 17-Oct-2013 | Private | Old NIH Biosketch |
| Buysse Training Grant Bio | 03-Apr-2015 | Public | NIH Biosketch |
| Buysse Research bio | 20-Mar-2015 | Private | NIH Biosketch |
| Buysse Mentor Bio | 20-Mar-2015 | Public | Old NIH Biosketch |
| DJB Training Grant Bio | 27-Mar-2015 | Public | NIH Biosketch |

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SciENcv


Saved Biosketches

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Daniel Buysse's Bibliography 174  17  1  1  214 

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 Manage citations  Add citations  Filter citations

 1 citation has been linked to your funding and added to your bibliography. 

407 citations, Sort by [newest to oldest](#) 

Baniak LM, Yang K, Choi J, Chasens ER. [Long Sleep Duration Is Associated With Increased Frailty Risk in Older Community-Dwelling Adults](#). J Aging Health. 2020 Jan-Feb;32(1):42-51. doi: 10.1177/0898264318803470. Epub 2018 Sep 29. PubMed PMID: 30270714; PubMed Central PMCID: PMC6440876.

[Other citations](#)


Public Access Compliance 

Complete. PMCID: [PMC6440876](#)

[2 Awards](#) [Link dataset](#)

Wallace ML, Lee S, Hall MH, Stone KL, Langsetmo L, Redline S, Schousboe JT, Ensrud K, LeBlanc ES, Buysse DJ. [Heightened sleep propensity: a novel and high-risk sleep health phenotype in older adults](#). Sleep Health. 2019 Dec;5(6):630-638. doi: 10.1016/j.sleh.2019.08.001. Epub 2019 Oct 31. PubMed PMID: 31678177; NIHMSID:NIHMS1542250.


[Other citations](#)

Public Access Compliance 

In process at NIHMS. NIHMS ID: [NIHMS1542250](#) [\[Edit Status\]](#)

[26 Awards](#) [Link dataset](#)

Genuardi MV, Ogilvie RP, Saand AR, DeSensi RS, Saul MI, Magnani JW, Patel SR. [Association of Short Sleep Duration and Atrial Fibrillation](#). Chest. 2019 Sep;156(3):544-552. doi: 10.1016/j.chest.2019.01.033. Epub 2019 Feb 27. PubMed PMID: 30825445; PubMed Central PMCID: PMC6717116.

Public Access Compliance 

Complete. PMCID: [PMC6717116](#)

[3 Awards](#) [Link dataset](#)

Example 1: Senior Investigator

OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH
Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Daniel J. Buysse, MD

eRA COMMONS USER NAME: (credential, e.g., agency login): DBUYSS

POSITION TITLE: Professor of Psychiatry and Clinical and Translational Science

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE (if applicable) | Completion Date MM/YYYY | FIELD OF STUDY |
|---|------------------------|-------------------------|---|
| University of Michigan, Ann Arbor, MI | BA | 05/1981 | English, Biomedical Science |
| University of Michigan, Ann Arbor, MI | MD | 05/1983 | Medicine |
| University of Pittsburgh, Pittsburgh, PA | Internship | 06/1984 | Internship in Medicine |
| University of Pittsburgh, Pittsburgh, PA | Residency | 06/1987 | Residency in Psychiatry |
| University of Pittsburgh, Pittsburgh, PA | Fellowship | 06/1989 | Clinical Research |
| University of Pittsburgh, Pittsburgh, PA | Fellowship | 06/1989 | Clinical Polysomnography |
| UPMC and Joseph M. Katz Graduate School of Business, Pittsburgh, PA | Certificate | 05/2012 | Physician Leadership and Management Program |

A. Personal Statement

Dr. Buysse has 30+ years of experience conducting clinical and translational research in sleep and circadian science. His research addresses several related themes: the development and validation of self-report measures for sleep; the assessment, pathophysiology, and treatment of insomnia; the development and evaluation of behavioral treatments for sleep disorders; the relationships between sleep and mental disorders, and between sleep and development (including adolescent development and aging); and sleep as a risk factor for health outcomes. His work has led to over 380 peer-reviewed publications.

Dr. Buysse published an influential manuscript defining multidimensional sleep health (MDSH), suggesting measurement methods, and outlining a potential research agenda (Buysse, 2014). This conceptualization served as one of the foundations for Dr. Wallace's current R01, and the proposed renewal. In their ongoing collaboration, Drs. Wallace and Buysse have explored different methods for defining MDSH and examined their relationship to mortality risk in the MROS, SOF, and Sleep Heart Health Cohorts. They have published 4 peer-reviewed papers together and have presented as co-panelists in national and international scientific meeting symposia on the topic of sleep health. Dr. Buysse has also collaborated extensively with other investigators on this application, including Drs. Hall, Yu, Stone, and Redline.

Dr. Buysse will serve as Co-Investigator on the renewal of this R01. He has worked closely and iteratively with Dr. Wallace on the development of this application. As Co-Investigator, he will contribute his expertise on sleep measurement methods, conceptual underpinnings of MDSH, and the development and clinical applications of MDSH assessment tools. Dr. Buysse will meet regularly with Dr. Wallace and other investigators to discuss data harmonization and analyses. He will collaborate with Drs. Wallace and Yu on psychometric evaluations. Finally, he will work with all study investigators on manuscripts and presentations resulting from this work.

- Buysse DJ**, Reynolds CF, Monk TH, Berman SR, Kupfer DJ: The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2):193-213, 1989.
- Buysse DJ**: Sleep health: Can we define it? Does it matter? *Sleep*, 37(1):9-17, 2014. PMID: PMC3902880
- Wallace ML, **Buysse DJ**, Redline S, Stone K, Ensrud K, Leng Y, Ancoli-Israel S, Hall, M. H. Multidimensional Sleep and Mortality in Older Adults: A Machine-Learning Comparison with Other Risk Factors. *J Gerontol A Biol Sci Med Sci*. [Epub ahead of print] PMID: in process DOI:10.1093/gerona/giz044

Background

Education

Personal Statement

General

Relevant to project

Specific role

General refs

Positions, Honors

Experience, memberships

Honors

Contributions

- Wallace ML, Lee S, Hall MH, Stoke K, Langsetmo L, Redline S, Schousboe JT, Ensrud K, LeBlanc ES, **Buysse DJ** for the MROS and SOF Research Groups. Heightened sleep propensity: A novel and high-risk sleep health phenotype in older adults. *Sleep Health*. (in press)

B. Positions and Honors

Positions and Employment

- 1988 - 1995 Assistant Professor, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA
 1995 - 2003 Associate Professor, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA
 1997 Conferral of Tenure, University of Pittsburgh, Pittsburgh, PA
 2003 Professor, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA
 2006 - 2009 Core Director, Participant and Clinical Interactions Resources Core (PCIR), University of Pittsburgh Clinical and Translational Science Institute (CTSI)
 2006 - 2014 Director, University of Pittsburgh, Neuroscience Clinical and Translational Research Center
 2008 Professor, Clinical and Translational Science, University of Pittsburgh, Pittsburgh, PA
 2009 - 2015 Assistant Director, Clinical Research Resources and Facilities Core, Clinical and Translational Science Institute (CTSI)
 2015 - Director, Hub Research Capacity Core, CTSI

Other Experience and Professional Memberships

- 1988 - Board Certified, American Board of Psychiatry and Neurology
 2005 - 2011 Member, American Board of Medical Specialties Sleep Medicine Test and Policy Committee
 2007 - Subspecialty Certificate in Sleep Medicine, American Board of Psychiatry and Neurology.
 1996 - 1999 Member, Human Development and Aging Subcommittee 2 (HUD-2) review group, NIH
 1999 - 2017 Reviewer, 16 NIH Special Emphasis Panels
 2009 - 2011 Chair, MESH Study Section
 1998 - 2002 Board of Directors, American Academy of Sleep Medicine
 2000 - 2001 President, American Academy of Sleep Medicine
 2009 - 2014 Member, Society of Behavioral Sleep Medicine Board of Directors
 2014 - 2016 Chair, Sleep Research Network
 2003 - 2018 Deputy Editor, SLEEP
 2012 NIMH Research Domains Criteria Workshop Participant, Arousal and Regulatory Systems
 2013 - 2014 American Academy of Sleep Medicine Quality Outcomes Task Force for Insomnia
 2014 - 2015 Writing Group Member, American Academy of Sleep Medicine/Sleep Research Society Consensus Conference on Sleep Duration in Adults
 2015 - 2016 Insomnia Track Leader, Sleep Research Society/NIH Workshop on Implementation Science in Sleep and Circadian Science

Honors

- 2004 Nathaniel **Kleitman** Distinguished Service Award, American Academy of Sleep Medicine
 2007 Fellow of the American Academy of Sleep Medicine, American Academy of Sleep Medicine
 2011 Innovator Award for the Pittsburgh Sleep Quality Index, University of Pittsburgh
 2014 UPMC Endowed Chair in Sleep Medicine, UPMC Health System
 2015 Mary A. Carskadon Outstanding Educator Award, Sleep Research Society
 2018 Elected to the Association of American Physicians
 2019 Peter **Hauri** Career Distinguished Achievement Award, Society of Behavioral Sleep Medicine

C. Contributions to Science

- 1. Development and validation of self-report measures for sleep.** Dr. Buysse has played a leading role in the development and validation of widely-used self-report measures for sleep. The Pittsburgh Sleep Quality Index (PSQI), first published in 1989, has been cited over 10,000 times, and earned Dr. Buysse a University of Pittsburgh Innovator Award. Dr. Buysse also played a leading role in development of the Patient-Reported Outcome Measures Information System (PROMIS) Sleep Disturbance and Sleep-Related Impairment scales, as part of the NIH Roadmap Initiative. Dr. Buysse initiated development of the multi-center Consensus Sleep Diary, and, with colleagues from the University of Pittsburgh, developed instruments including the Pittsburgh



Example 1: Senior Investigator

Sleep Diary, the Pittsburgh Insomnia Rating Scale, the Sleep Timing Questionnaire, the Daytime Insomnia Symptoms Scale, and Insomnia Symptom Questionnaire.

- Buysse DJ**, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Res*. 1989 May;28(2):193-213. PubMed PMID: [2748771](#).
- Monk TH, Reynolds CF 3rd, Kupfer DJ, **Buysse DJ**, Coble PA, et al. The Pittsburgh Sleep Diary. *J Sleep Res*. 1994;3:111-20. PubMed PMID: [11537903](#).
- Buysse DJ**, Yu L, Moul DE, Germain A, Stover A, et al. Development and validation of patient-reported outcome measures for sleep disturbance and sleep-related impairments. *Sleep*. 2010 Jun;33(6):781-92. PubMed PMID: [20550019](#); PubMed Central PMCID: [PMC2880437](#).
- Carney CE, **Buysse DJ**, Ancoli-Israel S, Edinger JD, Krystal AD, et al. The consensus sleep diary: standardizing prospective sleep self-monitoring. *Sleep*. 2012 Feb 1;35(2):287-302. PubMed PMID: [22294820](#); PubMed Central PMCID: [PMC3250369](#).

2. Development and testing of behavioral interventions for insomnia. Cognitive-behavioral treatment for insomnia (CBT-I) has demonstrated efficacy in a wide variety of patient samples. However, standard CBT-I, consisting of 6-8 individual sessions with a specialty-trained clinical psychologist, is not a viable model for dissemination of this valuable treatment. Dr. Buysse led the development of Brief Behavioral Treatment of Insomnia (BBTI) that can be delivered by psychologists, nurses, social workers, and other practitioners. BBTI is based on four key behavioral "rules" distilled from CBT-I, and is delivered in a single session, with one brief in-person and two telephone follow-up contacts. Dr. Buysse led the first randomized, controlled clinical trial to test BBTI. He worked with Anne Germain, PhD, who adapted and tested BBTI for military populations. Dr. Buysse is currently collaborating with investigators from the University of Pittsburgh and other universities to evaluate the efficacy of BBTI in diverse samples including veterans, adolescents, and primary care patients.

- Buysse DJ**, Germain A, Moul DE, Franzen PL, Brar LK, et al. Efficacy of brief behavioral treatment for chronic insomnia in older adults. *Arch Intern Med*. 2011 May 23;171(10):887-95. PubMed PMID: [21263078](#); PubMed Central PMCID: [PMC3101289](#).
- Harvey AG, Hein K, Dong L, Smith FL, Lisman M, Yu S, Rabe-Hesketh S, and **Buysse DJ**: A transdiagnostic sleep and circadian treatment to improve severe mental illness outcomes in a community setting: Study protocol for a randomized controlled trial. *Trials*. 17:606, 2016. PMID: PMC5175375
- *Levenson JC, Miller E, Hafer B, Reidell MF, **Buysse DJ**, and Franzen PL: Pilot study of a sleep health promotion program for college students. *Sleep Health*. 2(3):167-174, 2016. PMID: PMC4978431
- Levenson JC, Rollman BL, Ritterband LM, Strollo PJ, Smith KJ, Yabes JG, Moore CG, Harvey AG, and **Buysse DJ**: Hypertension with Unsatisfactory Sleep Health (HUSH): Study protocol for a randomized controlled trial. *Trials*. 18(1):256, 2017. PMID: PMC5461741

3. Functional neuroimaging studies of sleep in insomnia. Insomnia is often considered a psychological disorder, and its etiology and pathogenesis are most often explained with psychological constructs. However, with new knowledge regarding the regulation of sleep-wakefulness at the level of genes, molecules, cells, and circuits, it has become possible to investigate insomnia from a neurobiological perspective. Building on the pioneering work of his colleague Eric A. Nofzinger, MD, Dr. Buysse has led investigations into the functional neuroanatomy of insomnia using ¹⁸F-FDG Positron Emission Tomography (PET) studies in three separate grants. Drs. Buysse and Nofzinger collaborated on one of the most widely-cited papers on the functional neuroanatomy of insomnia (*AJP*, 2004). Findings from these studies have also led to the development of a testable model of "local sleep" dysregulation. Dr. Buysse has subsequently published 3 papers addressing in greater detail functional neuroimaging in insomnia, including evaluation of subjective-objective discrepancy and sleep deprivation responses.

- Nofzinger EA, **Buysse DJ**, Germain A, Price JC, Miewald JM, Kupfer DJ. Functional neuroimaging evidence for hyperarousal in insomnia. *Am J Psychiatry*. 2004 Nov;161(11):2126-8. PubMed PMID: [15514418](#).
- *Mullin BC, Phillips ML, Siegle GJ, **Buysse DJ**, Forbes EE, and Franzen PL: Sleep deprivation amplifies striatal activation to monetary reward. *Psychological Medicine*. 43(10):2215-25, 2013. PMID: PMC3742668
- *Kay DB, Karim HT, Soehner AM, Hasler BP, Wilckens KA, James JA, Aizenstein HJ, Price JC, Rosario BL, Kupfer DJ, Germain A, Hall MH, Franzen PL, Nofzinger EA, and **Buysse DJ**: Sleep-wake differences

in relative regional cerebral metabolic rate for glucose among patients with insomnia compared to good sleepers. *SLEEP*. 39(10):1779-1794, 2016. PMID: PMC5020360

- Kay DB, Karim HT, Soehner AM, Hasler BP, James JA, Germain A, Hall MH, Franzen PL, Price JC, Nofzinger EA, **Buysse DJ**. Subjective-Objective Sleep Discrepancy Is Associated With Alterations in Regional Glucose Metabolism in Patients With Insomnia and Good Sleeper Controls. *SLEEP*. 2017. 40(11). doi:10.1093/sleep/zsx155
- 4. Sleep and health.** Increasing attention is being paid to the role of sleep and circadian rhythms in physical and mental health. Dr. Buysse has worked with colleagues at the University of Pittsburgh, including Marica Hall, Ph.D., and Karen Matthews, Ph.D., and with colleagues at other institutions to investigate these relationships. Dr. Buysse was Co-Investigator on the SWAN sleep study and the SleepSCORE study, which examined these relationships in population samples. His work on sleep in relation to health has addressed the role of sleep in the development of depression, obesity, cardiovascular disease, and metabolic syndrome. He has also collaborated on studies in pregnancy, chronic renal failure, and asthma. Dr. Buysse wrote an influential article addressing the concept of "sleep health," its definition, and its role in population health, which has been cited >400 times and has led to multiple subsequent peer-reviewed publications.
- Franzen PL, Gianaros PJ, Marsland AL, Hall MH, Siegle GJ, Dahl RE, **Buysse DJ**. Cardiovascular reactivity to acute psychological stress following sleep deprivation. *Psychosomatic Medicine*. 73:679-682, 2011. PMID: PMC3614084
 - Furihata R, Hall MH, Stone KL, Ancoli-Israel S, Smagula SF, Cauley JA, **Kaneita Y**, Uchiyama M, **Buysse DJ**, and for the Study of Osteoporotic Fractures (SOF) Research Group: An aggregate measure of sleep health is associated with prevalent and incident clinically-significant depression symptoms among community-dwelling older women. *SLEEP*. 40(3), 2017. doi.org/10.1093/sleep/zsw075. PMID: PMC6084764
 - Wallace ML, Stone K, Smagula SF, Hall MH, Simsek B, Kado DM, Redline S, Vo TN, **Buysse DJ**, **McQS**, Study Research Group. Which Sleep Health Characteristics Predict All-Cause Mortality in Older Men? An Application of Flexible Multivariable Approaches *SLEEP*. 41(1), 2018. PMID: PMC5806578. doi: 10.1093/sleep/zsx189
 - Dong L, Martinez AJ, **Buysse DJ**, Harvey AG. A composite measure of sleep health predicts concurrent mental and physical health outcomes in adolescents prone to eveningness. *Sleep Health*. 5(2), 166-174, 2019. PMID: PMC6452900. doi:10.1016/j.sleh.2018.11.009
- 5. Sleep and circadian rhythms in relation to affect and development.** Dr. Buysse has investigated the relationships between sleep and psychiatric disorders, and between sleep and human development, over his entire career. His early work addressed sleep predictors of treatment outcome and recurrence in depression. Subsequently, he investigated longitudinal relationships between insomnia and depression, and the effects of sleep-focused treatments on mood disorder outcomes. In the field of sleep and development, Dr. Buysse was among the first to demonstrate altered amplitude of the circadian sleep propensity in older vs. younger adults. He has also collaborated with University of Pittsburgh colleagues to examine relationships between sleep, circadian rhythms, and affect in adolescence and older adulthood
- Buysse DJ**, Angst J, Gamma A, **Aidacic V**, **Eich D**, **Rossler W**. Prevalence, course and comorbidity of insomnia and depression in young adults. *Sleep*. 31(4):473-80, 2008. PMID: PMC2279748
 - Hasler BP, Germain A, Nofzinger EA, Kupfer DJ, Krafty RT, Rothenberger SD, James JA, Bi W, **Buysse DJ**. Chronotype and diurnal patterns of positive affect and affective neural circuitry in primary insomnia. *J Sleep Res*. 21:515-526, 2012. PMID: PMC3371278
 - McMakin DL, Dahl RE, **Buysse DJ**, Cousins JC, Forbes EE, Silk JS, Siegle GJ, and Franzen PL: The impact of experimental sleep restriction on affective functioning in social and nonsocial contexts among adolescents. *J Child Psychol Psychiatry*. 57(9):1027-1037, 2016. PMID: 27302148 PMID: PMC2829426
 - Manber R, **Buysse DJ**, Edinger J, Krystal A, Luther J, Wisniewski S, Trockel M, Kraemer H, and Thase ME: Efficacy of cognitive-behavioral therapy for insomnia combined with antidepressant pharmacotherapy in patients with comorbid depression and insomnia: A randomized controlled trial. *J Clin Psychiatry*. 77(10):1316-1323, 2016. PMID: 27788313 PMID: in process

Complete list of published work in My Bibliography:

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40800059/?sort=date&direction=ascending>

Publications

Contribution 2

Contribution 3

Contribution 4

My Bibliography



Example 1: Senior Investigator

Research support

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support

| Grant Number | Grant Title | Role on Project | Dates Inclusive |
|--|---|-----------------|------------------------|
| R01 AG047139-04 (PI: Buysse, Hall) | Sleep, Circadian Rhythms, and Cardiometabolic Risk in Retired Shift Workers To study retired night shift workers and retired day workers >60 years of age as a model to understand the effects of repeated sleep and circadian disruption on sleep, circadian, and cardiometabolic health in later life. | MPI | 7/1/2015 – 3/31/2020 |
| UH3 HL125103-05 (PI: Buysse) | Pragmatic trial of behavioral interventions for insomnia in hypertensive patients Low-cost, pragmatic, patient-centered, randomized controlled trial comparing two CBT-I based interventions for insomnia with comorbid hypertension to primary care physicians' usual care. | PI | 9/19/2014-7/31/2020 |
| UL1 TR001857-03 (PI: Reis) | University of Pittsburgh Clinical and Translational Science Institute (Hub Research Capacity Component (PCI)) To establish a comprehensive set of programs that support clinical and translational research at the University of Pittsburgh and across the national CTSA consortium. | Core Director | 7/1/2016-5/31/2021 |
| 1 R01 HL122460-04 (PI: Troxel) | Neighborhood Change: Impact on Sleep and Obesity-Related Health Disparities To study whether changes in the built and social environment, stimulated by substantial economic investment improves sleep, and in turn, reduces obesity-related health disparities. | Co-I | 1/15/2015-12/31/2019 |
| R01 MH105513-04 (PI: Harvey) | A Transdiagnostic Sleep and Circadian Treatment to Improve Community SMI Outcomes To conduct an 'efficacy in the real world' randomized controlled trial for 230 adult participants diagnosed with SMI who exhibit sleep and circadian dysfunction. | Co-I | 11/17/2014-10/31/2019 |
| 1 U01 HL128954-04 (PI: Wisniewski) | C Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC) To encourage and facilitate collaboration, sharing, interaction, and research within the PTC. | Co-I | 8/1/2015-7/31/2020 |
| 1 R01 AG056331-02 (PI: Wallace) | Sleep Health Profiles and Mortality Risk in Older Adults: A Multi-Cohort Application of Novel Statistical Methods To determine which sleep profiles predict health outcomes, and develop predictive algorithms that can identify individuals at risk of adverse health outcomes based on their sleep and other risk factors. | Co-I | 8/1/2017 – 7/31/2020 |
| 1 R01 HL131587-02 (PI: Luyster) | Improving Asthma Control using Internet-based Cognitive-behavioral Treatment for insomnia Our proposed study adopts a novel perspective on the interaction between insomnia and asthma control: targeted treatments for insomnia could improve asthma control and reduce the burden of disease. | Co-I | 8/20/2017-7/31/2021 |
| 1 R01 AA025626-02 (PI: Hasler) | Proximal Prospective Associations between Circadian Alignment, Reward Function and Alcohol Use in Adolescents To establish the proximal prospective associations between sleep/circadian factors, reward function, and Alcohol Use. | Co-I | 9/10/2017-5/31/2022 |
| 1 R01 AA026249-01 (PI: Federsen/Hasler) | Positive and Negative Reinforcement Pathways Underlying Sleep and Alcohol Use Associations To test the hypothesis that later sleep timing and shorter sleep duration predict greater increases in impulsivity and stimulation while intoxicated. | Co-I | 07/5/2018 – 04/30/2023 |
| 2 R01 GM113243-05 (PI: Krafty) | A Statistical Framework for the Spectral Analysis of High-Dimensional Physiological Time Series Signals To develop a framework of scalable methods for the adaptive spectral analysis of nonstationary high-dimensional signals | Co-I | 08/1/2018 – 05/31/2021 |
| Completed | | | |
| R21 MH102412-01 (PI: Buysse) | Dimensional Sleep Disturbance in Relation to Positive/Negative Affect Systems | PI | 7/18/2014-12/31/2016 |
| P01 AG20677-10 (PI: Buysse) | Aging Well, Sleeping Efficiently (Administration Core, Clinical Assessment Core, Project 1, Project 3) | PI | 6/1/2010-1/31/2017 |
| 1 R21 AG50892-02 (PI: Tyaqi) | Impact of Sleep on Chronobiology of Micturition | Co-I | 5/1/2016 – 2/28/2018 |
| R01 HS022889-04 (PI: Matthews) | Self-management via Health Kiosk by Community-Residing Older Adults | Co-I | 9/30/2014-9/29/2019 |

Detailed View: Personal Statement

A. Personal Statement

Dr. Buysse has 30+ years of experience conducting clinical and translational research in sleep and circadian science. His research addresses several related themes: the development and validation of self-report measures for sleep; the assessment, physiology, and treatment of insomnia; the development and evaluation of behavioral treatments for sleep disorders; the relationships between sleep and mental disorders, and between sleep and development (including adolescent development and aging); and sleep as a risk factor for health outcomes. His work has led to over 380 peer-reviewed publications.

General

Dr. Buysse published an influential manuscript defining multidimensional sleep health (MDSH), suggesting measurement methods, and outlining a potential research agenda (Buysse, 2014). This conceptualization served as one of the foundations for current R01, and the proposed renewal. In their ongoing collaboration, Drs. Wallace and Buysse have explored different methods for defining MDSH and examined their relationship to mortality risk in the MrOS, SOF, and Sleep Heart Health Cohorts. They have published 4 peer-reviewed papers together and have presented as co-panelists in national and international scientific meeting symposia on the topic of sleep health. Dr. Buysse has also collaborated extensively with other investigators on this application, including Drs. Hall, Yu, Stone, and Redline.

Relevant to application

Dr. Buysse will serve as Co-Investigator on the renewal of this R01. He has worked closely and iteratively with Dr. Wallace on the development of this application. As Co-Investigator, he will contribute his expertise on sleep measurement methods, conceptual underpinnings of MDSH, and the development and clinical applications of MDSH assessment tools. Dr. Buysse will meet regularly with Dr. Wallace and other investigators to discuss data harmonization and analyses. He will collaborate with Drs. Wallace and Yu on psychometric evaluations. Finally, he will work with all study investigators on manuscripts and presentations resulting from this work.

Specific role

Detailed View: Contributions to Science

2. Development and testing of behavioral interventions for insomnia. Cognitive-behavioral treatment for insomnia (CBT-I) has demonstrated efficacy in a wide variety of patient samples. However, standard CBT-I, consisting of 6-8 individual sessions with a specialty-trained clinical psychologist, is not a viable model for dissemination of this valuable treatment. Dr. Buysse led the development of **Brief Behavioral Treatment of Insomnia (BBTI)** that can be delivered by psychologists, nurses, social workers, and other practitioners. BBTI is based on four key behavioral “rules” distilled from CBT-I, and is delivered in a single session, with one brief in-person and two telephone follow-up contacts. Dr. Buysse led the **first randomized, controlled clinical trial to test BBTI**. He worked with Anne Germain, PhD, who adapted and tested BBTI for military populations. Dr. Buysse is currently collaborating with investigators from the University of Pittsburgh and other institutions to **evaluate the efficacy of BBTI in diverse samples including veterans, adolescents, and primary care patients.**

4. Sleep and health. Increasing attention is being paid to the **role of sleep and circadian rhythms in physical and mental health.** Dr. Buysse has worked with colleagues at the University of Pittsburgh, including Martica Hall, Ph.D., and Karen Matthews, Ph.D., and with colleagues at other institutions to investigate these relationships. Dr. Buysse was Co-Investigator on the SWAN sleep study and the SleepSCORE study, which examined these relationships in population samples. His work on sleep in relation to health has **examined the role of sleep in the development of depression, obesity, cardiovascular disease, and metabolic syndrome.** He has also collaborated on studies in pregnancy, chronic renal failure, and asthma. Dr. Buysse **wrote an influential article addressing the concept of “sleep health,” its definition, and its role in population health, which has been cited >400 times and has led to multiple subsequent peer-reviewed publications.**

Personalize the Personal Statement!

A. Personal Statement

General → Dr. Buysse has 30 years of experience conducting clinical and translational research in sleep medicine. His research addresses several related themes: the development and validation of self-report measures for sleep; the assessment, pathophysiology, and treatment of insomnia; the development and evaluation of behavioral treatments for sleep disorders; and the relationships between sleep, health, and development. Dr. Buysse's research has involved healthy younger and older adults, individuals with insomnia, and individuals with depression and other psychiatric disorders. His work has led to >360 peer-reviewed publications, including guidelines and review papers on the management of insomnia with behavioral and pharmacologic treatments.

Relevant to application → Dr. Buysse has previously worked with Dr. Patterson on the development and testing of an intervention for sleep and fatigue in Emergency Medical Services workers, and on evidence-based guidelines for fatigue risk management in EMS workers. Dr. Buysse has also conducted multiple laboratory studies of sleep and circadian rhythms, including studies that use blood pressure and heart rate variability as outcomes. His work has also included a large number of field studies measuring sleep via self-report and actigraphy, as well as home blood pressure monitoring.

Specific role → Dr. Buysse will serve as a Co-Investigator on this grant. He has worked with Dr. Patterson to develop the design, measures, and methods of the proposed study. Dr. Buysse will contribute his specific expertise on sleep, circadian rhythms, and shift work—areas he has previously published on. He will assist Dr. Patterson with finalizing the research study protocol, recruitment, and conduct of research procedures. Finally, he will work with Dr. Patterson and other co-investigators on data analysis, interpretation, and dissemination, in preparation for subsequent studies.

Personalize the Contributions to Science

Adolescence, affect, reward

4. Sleep and health. Increasing attention is being paid to the role of sleep and circadian rhythms in physical and mental health. Dr. Buysse has worked with colleagues at the University of Pittsburgh, including Martica Hall, Ph.D., and Karen Matthews, Ph.D., and with colleagues at other institutions to investigate these relationships. Dr. Buysse was Co-Investigator on the SWAN sleep study and the SleepSCORE study, which examined these relationships in population samples. His work on sleep in relation to health has addressed the role of sleep in the development of depression, obesity, cardiovascular disease, and metabolic syndrome. He has also collaborated on studies in pregnancy, chronic renal failure, and asthma. Dr. Buysse also wrote an influential article addressing the concept of “sleep health,” its definition, and its role in population health.

- Franzen PL, Gianaros PJ, Marsland AL, Hall MH, Siegle GJ, Dahl RE, **Buysse DJ**. Cardiovascular reactivity to acute psychological stress following sleep deprivation. *Psychosomatic Medicine*, 73:679-682, 2011. PMID: PMC3614084
- Furihata R, Hall MH, Stone KL, Ancoli-Israel S, Smagula SF, Cauley JA, Kaneita Y, Uchiyama M, **Buysse DJ**, and for the Study of Osteoporotic Fractures (SOF) Research Group: An aggregate measure of sleep health is associated with prevalent and incident clinically-significant depressive symptoms among community-dwelling older women. *SLEEP*, 40(3), 2017. doi.org/10.1093/sleep/zsw075 PMID: PMC6084764
- Wallace ML, Stone K, Smagula SF, Hall MH, Simsek B, Kado DM, Redline S, Vo TN, **Buysse DJ**, MrOS Study Research Group. Which Sleep Health Characteristics Predict All-Cause Mortality in Older Men? An Application of Flexible Multivariable Approaches *SLEEP*, 41(1), 2018. PMID: PMC5806578. doi: 10.1093/sleep/zsx189
- Dong L, Martinez AJ, **Buysse DJ**, Harvey AG. A composite measure of sleep health predicts concurrent mental and physical health outcomes in adolescents prone to eveningness. *Sleep Health*, 5(2), 166-174, 2019. PMID: PMC6452900 doi:10.1016/j.sleh.2018.11.009

Adults, shift work, blood pressure

4. Sleep and health. Increasing attention is being paid to the role of sleep and circadian rhythms in physical and mental health. Dr. Buysse has worked with colleagues at the University of Pittsburgh, including Martica Hall, Ph.D., and Karen Matthews, Ph.D., and with colleagues at other institutions to investigate these relationships. Dr. Buysse was Co-Investigator on the SWAN sleep study and the SleepSCORE study, which examined these relationships in population samples. His work on sleep in relation to health has addressed the role of sleep in the development of depression, obesity, cardiovascular disease, and metabolic syndrome. He has also collaborated on studies in pregnancy, chronic renal failure, and asthma. Dr. Buysse also wrote an influential article addressing the concept of “sleep health,” its definition, and its role in population health.

- Troxel WM, **Buysse DJ**, Hall M, Kamarck T, Owens JF, Strollo PJ, Reis SE, Matthews KA. Social integration, social contacts, and blood pressure dipping in African-Americans and Whites. *Journal of Hypertension*, 28: 265-71, 2010. PMID: PMC2864490
- Hall M, Middleton K, Thayer JF, Lewis TT, Kline CE, Matthews KA, Kravitz HM, Knutty RT, and **Buysse DJ**: Racial differences in heart rate variability during sleep in women: The Study of Women Across the Nation Sleep Study. *Psychosomatic Medicine*, 75(8):783-790, 2013. PMID: PMC3902648
- Monk TH, and **Buysse DJ**: Exposure to shift work as a risk factor for diabetes. *J Biol Rhythms*, 28(5):356-359, 2013. PMID: PMC4001827
- Wallace ML, Stone K, Smagula SF, Hall MH, Simsek B, Kado DM, Redline S, Vo TN, **Buysse DJ**, MrOS Study Research Group. Which Sleep Health Characteristics Predict All-Cause Mortality in Older Men? An Application of Flexible Multivariable Approaches *SLEEP*, 2017. PMID: PMC5806578. doi: 10.1093/sleep/zsx189

Same

Different

Example 2: Mid-Career

OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Hasler, Brant P.

ORA COMMONS USER NAME (credential, e.g., agency login): haslerb

POSITION TITLE: Associate Professor of Psychiatry, Psychology, and Clinical and Translational Science

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE (if applicable) | Completion Date MM/YYYY | FIELD OF STUDY |
|--|------------------------|-------------------------|---|
| Wesleyan University (Middletown, CT) | B.A. | 05/94 | Neuroscience & Behavior |
| Oregon Health & Science University (Portland, OR) | | 08/99 | Neuroscience |
| University of Arizona (Tucson, AZ) | M.A. | 05/05 | Clinical Psychology |
| University of Arizona (Tucson, AZ) | Ph.D. | 08/09 | Clinical Psychology |
| University of Pittsburgh School of Medicine (Pittsburgh, PA) | Postdoctoral | 07/12 | Translational Research Training in Sleep Medicine (T32) |

A. PERSONAL STATEMENT

Dr. Hasler's experience makes him an ideal Project Leader on **Project 2** of the present P50 application (CARRS; DA046346). Dr. Hasler's research focuses on the role of sleep and circadian rhythms in regulating affect and motivation, particularly as relevant to affective disorders and substance abuse. He has over 19 years of experience conducting clinical and translational research on the interrelationships between sleep, circadian rhythms, and psychological function in adolescent and adults. Dr. Hasler is currently PI or Co-PI on three relevant NIH Grants: a NIAAA-funded R01 (AAA205626) that examines proximal and longitudinal associations between circadian alignment, reward-related brain function, and alcohol use in high school students who are regular drinkers, a NIDA-funded R01 (DA044143) that characterizes the substance use risk profile of adolescents with late sleep/circadian timing and then experimentally manipulates sleep/circadian timing in an effort to reduce risk, and a NIAAA-funded R01 examining associations between sleep timing and the response to experimentally-administered alcohol in young adults with moderate alcohol use. He also serves as a Co-I or consultant on several other NIH grants, including an ongoing U01 (AA021690) that is investigating the longitudinal relationships between alcohol use and adolescent brain development, with a substudy focusing on the role of sleep.

Notably, Dr. Hasler has numerous past and ongoing collaborations with multiple other CARRS investigators, underscoring the feasibility of the proposed project. Drs. Buysse and Clark are Co-Is on Dr. Hasler's current R01s and also served on his concluded K01 and R21. Drs. Logan and McClung are Co-Is on one of Dr. Hasler's ongoing R01s. Dr. Hasler served as a Co-I on Dr. Buysse's concluded R21 (MH102412) and is a current Co-I on the aforementioned U01, for whom Dr. Clark is the PI for the Pittsburgh site. Dr. Hasler has previously collaborated with Dr. McClung on two pilot studies. Finally, Dr. Hasler has co-authored numerous peer-reviewed publications with various members of the CARRS team (e.g., A1-4, C1b-d, C2b-d, C3c).

With regard to Dr. Hasler's role on the project **P2-Circadian-sleep manipulation**, he has extensive experience conducting studies examining adolescent sleep and circadian rhythms in relation to multi-modal measures of cognitive control and reward function. Dr. Hasler has led multiple such studies including an experimental sleep/circadian manipulation, and he is also a practicing clinical psychologist with expertise in treatment of sleep and circadian disorders. Dr. Hasler will oversee all aspects of **P2** in close collaboration with Co-I Dr. Levenson.

- A1. **Hasler BP**, Soehner AM, Clark DB. Circadian rhythms and risk for substance use disorders in adolescence. *Current Opinion in Psychiatry*, 27(6), 460-466, 2014. PMID: PMC4227308.
- A2. **Hasler BP**, Franzen PL, de Zambotti M, Prouty D, Brown SA, Tapert SF, Pfefferbaum A, Pohl KM, Sullivan EV, DeBellis MD, Nagel BJ, Colrain IM, Baker FC, Clark DB. Eveningness and later sleep timing are associated with greater risk for alcohol and marijuana involvement: Initial findings from the NCANDA study. *Alcoholism: Clinical and Experimental Research*, 41,1154-1165, 2017. PMID: PMC5488322
- A3. Logan RW, **Hasler BP**, Forbes EE, Franzen PL, Torregrossa MM, Huang YH, Buysse DJ, Clark DB, McClung CA. Impact of sleep and circadian rhythms on addiction vulnerability in adolescents. *Biological Psychiatry*, 83, 987-996, 2018. PMID: PMC5972052
- A4. **Hasler BP**, Bruce S, Scharf D, Clark DB. Circadian misalignment and weekend alcohol use in late adolescent drinkers: Preliminary evidence. *Chronobiology International*, 36, 796-810, 2019. PMID: PMC6499627

B. Positions and Honors Positions and Employment

| | |
|-----------|---|
| 1995-1998 | Research Associate I-II, Pharmacology and Pharmacokinetics Departments, Alkermes, Inc. |
| 1999-2000 | Research Laboratory Technician, Blood-Brain Barrier Program, Oregon Health & Science University/Portland Veteran Affairs Medical Center |
| 2000-2002 | Senior Research Assistant, Sleep and Mood Disorders Laboratory, Psychiatry Department, Oregon Health & Science University |
| 2003 | Graduate Research Assistant, Sleep Research Laboratory, Department of Psychology, University of Arizona |
| 2004-2008 | Graduate Research Assistant & Lab Manager, Family Research Laboratory, Department of Psychology, University of Arizona |
| 2008-2009 | Clinical Psychology Intern, Department of Psychiatry, University of Pittsburgh School of Medicine, and Western Psychiatric Institute and Clinic |
| 2009-2012 | Post-doctoral Scholar, University of Pittsburgh School of Medicine |
| 2012- | Assistant Professor, Department of Psychiatry, University of Pittsburgh School of Medicine |
| 2012- | Co-director, Behavioral Sleep Medicine training fellowship, University of Pittsburgh |
| 2016- | Assistant Professor, Department of Psychology (secondary appointment), University of Pittsburgh |
| 2017- | Assistant Professor, Clinical and Translational Science Institute (secondary appointment), University of Pittsburgh |
| 2019- | Associate Professor, Department of Psychiatry, University of Pittsburgh School of Medicine |

Other Experience and Professional Membership

| | |
|-----------|---|
| 2005- | Member, Association for Psychological Science |
| 2011- | Member, Research Society on Alcoholism |
| 2003- | Member, Sleep Research Society |
| 2005- | Member, Society for a Science of Clinical Psychology |
| 2010- | Member, Society for Research on Biological Rhythms |
| 2010- | Member, Society of Behavioral Sleep Medicine |
| 2009-2011 | Trainee Member-At-Large, Board of Directors, Sleep Research Society |
| 2016-2019 | Committee Member, Trainee Education Advisory (TEAC) Committee, Sleep Research Society |

Honors

| | |
|------|---|
| 2003 | Pre-doctoral Research Grant, Social & Behavioral Sciences Research Institute, University of Arizona |
| 2005 | Merit Based Trainee Travel Award, Sleep Research Society |
| 2007 | Dissertation Grant Award, Society for a Science of Clinical Psychology |
| 2007 | Dissertation Research Grant, Social & Behavioral Sciences Research Institute, University of Arizona |
| 2008 | Dissertation Research Award, American Psychological Association |
| 2009 | Abstract Excellence Award, Sleep Research Society. |
| 2010 | NIH Clinical Loan Repayment Program Awardee, National Institute of Mental Health. |
| 2011 | Meritorious Abstract Award, Sleep Research Society |
| 2011 | 3T Pilot Scanning Program Awardee, Western Psychiatric Institute and Clinic. |



Example 2: Mid-Career

2012 NIDA-funded Travel Award to 2012 Joint Meeting on Adolescent Treatment Effectiveness
2012 American Academy of Sleep Medicine's Young Investigator Research Forum (declined)
2012 Meritorious Abstract Award, Sleep Research Society
2012 Junior Investigator Travel Award, Research Society on Alcoholism
2012 Outstanding Poster Presentation, Postdoctoral Fellows Category, WPIC 12th Annual Research Day
2012 NIH Clinical Loan Repayment Program, National Institute of Drug Abuse
2014 NIH Clinical Loan Repayment Program, National Center for Advancing Translational Sciences
2015 Early Career Travel Award to 2015 Science of Change—NIAAA-sponsored conference on Neuroimaging Mechanisms of Change in Psychotherapy for Addictive Behaviors
2015 NIH Clinical Loan Repayment Program Awardee, National Institute of Drug Abuse
2015 Travel Award to 2015 Annual Meeting of the Sleep Research Network
2017 Philip Troen, MD, Excellence in Medical Student Research Mentoring Award
2017 Award for Exemplary Service, Clinical Psychology Internship Training Program, WPIC

C. Contributions to Science

1. Circadian modulation of reward function. Dr. Hasler is one of a handful of clinical researchers contributing to an emerging literature on circadian modulation of reward function. This work parallels a similarly burgeoning basic literature linking circadian genetics and physiology to reward. Dr. Hasler's work has employed a range of complementary methodologies, including self-report instruments, clinical interviews, objective sleep (actigraphy, polysomnography) and circadian (melatonin) measures, and functional neuroimaging, that provide converging support for circadian-reward interactions. Dr. Hasler is also advancing and informing the neuroimaging literature through explicit consideration of circadian factors when assessing brain function—factors that have been largely neglected in the literature to date. These efforts have resulted in a published paper (C1d) demonstrating time-of-day changes in the neural response to reward, and multiple past and ongoing research studies that employ physiological measures of circadian phase and multiple scans carefully timed to elucidate circadian effects.

- Hasler BP**, Allen JJB, Sbarra DA, Bootzin RR, Bernert RA. Morningness-eveningness and depression: Preliminary evidence for the role of BAS and positive affect. *Psychiatry Research*, 176, 166-173, 2010. PMID: PMC2844473.
- Hasler BP**, Buysse DJ, Kupfer DJ, Germain A. Phase relationships between core body temperature, melatonin, and sleep are associated with depression severity: Further evidence for circadian misalignment in non-seasonal depression. *Psychiatry Research*, 178(1), 205-207, 2010. PMID: PMC2914120.
- Hasler BP**, Dahl RE, Holm SM, Jakubcak JL, Ryan ND, Silk JS, Phillips ML, Forbes EE. Weekend-weekday advances in sleep timing are associated with altered reward-related brain function in healthy adolescents. *Biological Psychology*, 91, 334-341, 2012. PMID: PMC3490026
- Hasler BP**, Forbes EE, Franzen PL. Time-of-day differences and short-term stability of the neural response to monetary reward: A pilot study. *Psychiatry Research: Neuroimaging*, 224, 22-27, 2014. PMID: PMC4157087

2. Sleep and circadian factors in substance involvement. Paralleling his role in C1, Dr. Hasler has been a key player in the growing interest in the role sleep and circadian factors may play in substance involvement. Dr. Hasler authored a 2012 *Sleep Medicine Reviews* article that comprehensively reviewed the extant literature on circadian rhythms and substance abuse as well as more recent conceptual review articles more specifically focusing on circadian misalignment as a pathway to adolescent substance use (e.g. C2b). He was invited to write review articles on this topic for *Alcohol* and *Current Opinions in Psychiatry*, highlighting his growing reputation in the field. He has also been advancing this area through published empirical work demonstrating an association between circadian alignment and substance abuse (C2a), neuroimaging evidence that evening chronotypes show an altered response to reward that may partly explain their tendency for increased alcohol involvement (C2c), and longitudinal associations between sleep complaints and alcohol involvement (C2d). Most importantly, he is leading three ongoing R01 research studies aimed at elucidating the mechanisms linking sleep/circadian factors to adolescent and young adult substance involvement.

- Hasler BP**, Bootzin RR, Cousins JC, Fridel K, Wenk GL. Circadian phase in sleep-disturbed adolescents with a history of substance abuse. *Behavioral Sleep Medicine*, 6(1), 55-73, 2008.
- Hasler BP**, Clark DB. Circadian misalignment, reward functioning, and adolescent alcohol

involvement. *Alcoholism: Clinical and Experimental Research*, 37, 558-565, 2013. PMID: PMC3843484

- Hasler BP**, Sitnick SL, Shaw DS, Forbes EE. An altered neural response to reward may contribute to alcohol problems among late adolescents with an evening chronotype. *Psychiatry Research: Neuroimaging*, 214, 357-364, 2013. PMID: PMC3852171
- Hasler BP**, Martin CS, Wood DS, Rosario B, Clark DB. A longitudinal study of insomnia and other sleep complaints in adolescents with and without alcohol use disorders. *Alcoholism: Clinical and Experimental Research*, 38, 2225-2233, 2014. PMID: PMC4146702

3. Ecological momentary assessment in the study of sleep/circadian rhythms. Dr. Hasler has brought creative approaches to utilizing ecological momentary assessment (EMA) methods in sleep/circadian research. Based on prior findings that positive affect and reward motivation follow a circadian rhythm, he applied cosinor analysis approaches from the circadian literature to examining affect-associated behaviors in young adults (C3a) and self-reported positive affect in adults with insomnia (C3c). Both studies revealed daily rhythms in positive affect-related processes that may be inform our understanding of the pathogenesis of relevant disorders, as well as their prevention and treatment. This work paved the way for a related paper by a junior colleague (C3d). He also published an influential paper demonstrating day-to-day bidirectional sleep and relationship functioning relationships in couples (C3b) and based on data from a study he designed and led for his dissertation. Dr. Hasler continues to employ EMA methodology in his ongoing R01 studies, hypothesizing that sleep and circadian factors will modulate daily patterns in craving and substance use.

- Hasler BP**, Mehl MR, Bootzin RR, Vazire S. Preliminary evidence of diurnal rhythms in everyday behaviors associated with positive affect. *Journal of Research in Personality*, 42(6), 1537-1546, 2008.
- Hasler BP**, Troxel WM. Couples' nighttime sleep efficiency and concordance: Evidence for bidirectional associations with daytime relationship functioning. *Psychosomatic Medicine*, 72(8), 794-801, 2010. PMID: PMC2950886.
- Hasler BP**, Nofzinger EA, Germain A, Kupfer DJ, Kratty RT, Rothenberger SD, James JA, Bi W, Buysse DJ. Chronotype and diurnal patterns of positive affect and affective neural circuitry in primary insomnia. *Journal of Sleep Research*, 21, 515-526, 2012. PMID: PMC3371278
- Miller MA, Rothenberger SD, **Hasler BP**, Donofry SD, Wong PM, Manuck SB, Kamarck KA, Roeklein KA. Chronotype predicts positive affect rhythms measured by ecological momentary assessment. *Chronobiology International*, 32, 376-384, 2015. PMID: PMC4458846

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/brant.hasler.1/bibliography/43827584/public/?sort=date&direction=descending>

D. Research Support

Ongoing Research Support

R01 AA025626 Hasler (PI) 09/10/17-05/31/22

Proximal prospective associations between circadian alignment, reward function, and alcohol use in adolescents

This project examines both prospective (over 8 days) and longitudinal associations between sleep/circadian characteristics, reward function (behavioral and fMRI), and alcohol use in 16-19 y/o teens.

Role: PI

R01 AA026249 Hasler (MPI; Multi-PI with Sarah Pedersen, PhD) 09/10/17-05/31/22

Positive and negative reinforcement pathways underlying sleep and alcohol use associations

This project tests whether sleep characteristics predict the response to experimentally-administered alcohol in young adult drinkers, including assessing the role of positive or negative reinforcement processes.

Role: PI



Example 2: Mid-Career

| | | |
|---|-----------------------------|-------------------|
| R01 DA044143 Delayed sleep phase and risk for adolescent substance use. This project examines delayed sleep timing and risk for substance use among 16-19 y/o teens, including experimentally probing whether stabilizing sleep/circadian timing reduces markers of risk for substance use. Role: PI | Hasler (PI) | 07/01/18-05/31/23 |
| U01 AA021690 National Consortium on Alcohol and NeuroDevelopment in Adolescence To determine both the effects of alcohol exposure on the developmental trajectory of the adolescent human brain and identify preexisting psychobiological vulnerabilities that elevate risk for an alcohol use disorder. Role: Co-I | Clark (PI) | 09/05/12-06/30/22 |
| R01 MH103313 Melanopsin Photosensitivity and Psychopathology Role: Co-I | Roecklein (PI) | 09/17/14-07/31/19 |
| R01 AA023839 The Effect of Alcohol on Retinal Photic Signaling to the Human Circadian System Role: Consultant | (PIs: Burgess and Cao) | 06/20/16-05-31/20 |
| Completed Research Support | | |
| K01 DA032557 Circadian Misalignment and Reward Function: A Novel Pathway to Substance Use This project examined the role of circadian rhythms in modulating reward function, as a potential mechanism of risk for adolescent substance abuse, and using fMRI in the context of a novel experimental design. Role: PI | Hasler (PI) | 07/01/12-04/30/18 |
| R21 AA023209 Circadian Alignment, Reward Function, and Alcohol Use During Late Adolescence This project examined the role of circadian rhythms in modulating reward function, as a potential mechanism of risk for adolescent substance abuse, among late adolescent alcohol users in a naturalistic context. Role: PI | Hasler (PI) | 08/10/14-07/31/17 |
| R21 MH102412 Dimensional Sleep Disturbance in Relation to Positive/Negative Affect Systems Role: Co-I | Buysse (PI) | 07/18/14-12/31/16 |
| Basic-To-Clinical Collaborative Research Pilot Program, CTSI Investigating the Molecular Mechanisms that Regulate the Increased Vulnerability for Addiction in Adolescents Role: Co-PI | Hasler (Co-PI with McClung) | 07/01/15-06/30/16 |
| Pilot grant from University of Pittsburgh Physicians Foundation Direct and circadian effects of bright light on human reward function Role: PI | Hasler (PI) | 10/01/17-09/30/18 |



Example 3: Early-Career

OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Stephen F. Smagula

eRA COMMONS USER NAME (credential, e.g., agency login): SSMAGULA

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE (if applicable) | Completion Date MM/YYYY | FIELD OF STUDY |
|--|------------------------|-------------------------|--|
| Lafayette College, Easton, PA | BS | 05/09 | Neuroscience |
| Teachers College Columbia University, NY, NY | MS | 05/10 | Neuroscience and Education |
| Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA | PhD | 12/14 | Aging and Sleep Epidemiology |
| Department of Psychiatry, School of Medicine, the University of Pittsburgh, Pittsburgh, PA | | 12/2016 | Clinical and Translational Geriatric Psychiatry Research |
| | | 04/2017 | Translational Research Training in Sleep Medicine |

A. Personal Statement

I am a ~~neuroepidemiologist~~ currently supported by a NIMH K01 award. To inform novel prevention approaches, I am researching the etiology of depression in older adults, specifically focusing on the role of sleep and sleep-wake rhythm disturbances. In a series of publications, I have shown that specific sleep-wake patterns mark mood phenotypes. The proposed R21 is a natural extension of my prior work and would allow me to apply my methodological and content-area knowledge to help inform suicide prevention approaches. Consistent with other research, my work has found that persistent depression and cognitive impairment often co-occur in older adults. These factors (depression and cognitive deficits) among the key drivers of suicide risk in older adults. To inform suicide prevention approaches, this proposal links together my team's expertise in sleep-wake patterns, depression, and cognition. If this proposal is funded, I will take responsibility for all aspects of study administration including ethics board approval, data collection, training staff, monitoring participant safety, reporting results, and sharing deidentified data with the research community.

Publications most relevant to this application (out of 39 total and 27 first-author publications):

1. **Smagula SF**, Ancoli-Israel S, Blackwell T, Boudreau R, Stefanick M, ~~Raudel M~~, Stone KL, Cauley JA. (2014). Circadian rest-activity rhythms predict future increases in depressive symptoms among community-dwelling older men. *American Journal of Geriatric Psychiatry*, 23(5): 495-505. doi: 10.1016/j.jagp.2014.06.007
2. **Smagula SF**, Boudreau R, Stone KS, Reynolds CF, Bromberger J, Ancoli-Israel S, Dam TT, ~~Barett-Connor E~~, Cauley JA. (2015). Latent circadian rest-activity rhythm disturbance sub-groups and longitudinal change in depression symptoms among older men. *Chronobiology International*, 32(10):1427-37. doi:10.3109/07420528.2015.1102925.
3. **Smagula SF**, Krafty RT, Thayer JF, Buysse DJ, Hall MH. (2018). Rest-activity rhythm profiles associated with manic-hypomanic and depressive symptoms. *Journal of Psychiatric Research*, 102: 238-244.
4. **Smagula SF**. (2016). Opportunities for clinical applications of rest-activity rhythms in detecting and preventing mood disorders. *Current Opinion in Psychiatry*, 29(6):389-396.

B. Positions and Honors

Positions and Employment

- 2009-2012 Research Staff and Study Coordinator, Child Psychiatric Epidemiology Group (PI, Christina W. Hoven, DrPH), New York State Psychiatric Institute
- 2012-2013 Graduate Student Researcher (PI, Jane A. Cauley, DrPH), Department of Epidemiology, University of Pittsburgh Graduate School of Public Health
- 2013-2014 National Institute on Aging pre-doctoral fellow in Aging Epidemiology (PI, Anne B. Newman, MD), Department of Epidemiology, University of Pittsburgh Graduate School of Public Health
- 2015-2017 National Institute of Mental Health post-doctoral scholar in Clinical and Translational Geriatric Psychiatry Research (PI, Charles F. Reynolds III, MD). Co-mentored from the Geriatric Psychiatry Neuroimaging Laboratory (PI, Howard J. Aizenstein, MD PhD) and the Sleep and Chronobiology Laboratory (co-PI, Martica Hall, PhD), Western Psychiatric Institute and Clinical of the University of Pittsburgh Medical Center
- 2017- Assistant Professor, Department of Psychiatry, School of Medicine, University of Pittsburgh Secondary appointment: Department of Epidemiology, Graduate School of Public Health

Other Experience and Professional Memberships

- 2012 Member, Gerontological Society of America
- 2016- Member, American Association of Geriatric Psychiatry
- 2016-2017 Associate Editorial Board Member, *American Journal of Geriatric Psychiatry*

Awards and Honors

- 2018 Sleep Research Network Meeting Travel Award
- 2018 Travel Scholarship, Sleep & Aging Workshop, International Psychogeriatric Association
- 2016 First-place poster, post-doctoral fellow category: "Immunological biomarkers of brain health in late-life major depressive disorder", Aging Institute Research Day, University of Pittsburgh
- 2015 Summer Research Institute in Geriatric Psychiatry (National Institute of Mental Health sponsored travel award/training in June 2015)
- 2015 Outstanding Doctoral Student, Department of Epidemiology, University of Pittsburgh, Graduate School of Public Health

C. Contributions to Science

Sleep-wake disruption and depression in older adults

Since my dissertation, I have been studying how objective measures of sleep-wake patterns relate to depression risk in older adults. I am currently working on K01 research-training that seeks better define the specific sleep-wake patterns that affect older dementia caregivers. We are also examining how sleep-wake patterns affect or reflect brain aging. In several papers, I have shown that specific rest-activity rhythm disturbances mark mood phenotypes (including unipolar depression, mania-hypomania symptoms, seasonal depression, and subclinical depression symptoms in dementia caregivers). The proposed work is a natural extension of this past work towards applications of this research to prevent suicide in people with mood disorders.



Example 3: Early-Career

1. **Smagula SF**, Kraffy RT, Taylor BJ, Martire LM, Schulz R, & Hall MH. (2017). Rest-activity rhythm and sleep characteristics associated with depression symptom severity in strained dementia caregivers. *Journal of Sleep Research*, 26(6): 718-725.
2. **Smagula SF**, Kraffy RT, Thayer JF, Buysse DJ, Hall MH. (2018). Rest-activity rhythm profiles associated with manic-hypomanic and depressive symptoms. *Journal of Psychiatric Research*, 102: 238-244.
3. **Smagula SF**, DuPont CM, Miller MA, Kraffy RT, Hasler BP, Franzen PL, and Roeklein KA. (2018). Rest-activity rhythms characteristics and seasonal changes in seasonal affective disorder. *Chronobiology International*, 35(11): 1553-1559.
4. **Smagula SF**, Freedland KE, Steinmeyer BC, Wallace MJ, Carney RM, Rich MW. (In press). Moderators of response to cognitive behavior therapy for major depression in patients with heart failure. *Psychosomatic Medicine*.

Treatment resistant late-life depression and the neurobiology of brain aging

My past work focused on the determinants of heterogeneity in response to pharmacotherapy for late-life major depressive disorder. Consistent with other work, I found that resistance to depression treatment is the norm and not the exception, and that markers of worse brain health predict a more chronic course of depression. This past work has provided me with an understanding of the clinical and biological context in which the proposed study will take place. I am now proposing to examine one of the most important consequences of depression: suicide. To extend existing evidence, we will examine whether sleep-wake disturbances are an important upstream contributor to persistent depression, cognitive impairment, and suicide risk in this population.

1. **Smagula SF**, Butters MA, Anderson SJ, Lenze EK, Dew MA, Mulsant BH, Lotrich FE, Aizenstein H, Reynolds CF. (2015). Antidepressant response trajectories and associated clinical prognostic factors in late-life depression. *JAMA Psychiatry*, 72(10):1021-8. doi: 10.1001/jamapsychiatry.2015.1324.
2. **Smagula SF**, Lotrich FE, Aizenstein HJ, Diniz BS, Krystek J, Wu GF, Mulsant B, Butters MA, Reynolds CF, Lenze EJ. (2017). Immunological biomarkers associated with brain structure and executive function in late-life depression: exploratory pilot study. *International Journal of Geriatric Psychiatry*, 32(6):692-699. doi: 10.1002/gps.4512
3. **Smagula SF**, Beach S, Rosso AL, Newman AB, Schulz R. (2017). Brain structural markers and caregiving characteristics as interacting correlates of caregiving strain. *American Journal of Geriatric Psychiatry*, 25(6): 582-591.
4. **Smagula SF**, Karim HT, Rangarajan A, Santos FP, Wood SC, Santini T, Jakicic JM, Reynolds CF III, Cameron JL, Vallejo AN, Butters MA, Rosano C, Ibrahim TS, Erickson KI, Aizenstein HJ. (2018). Association of hippocampal substructure resting-state functional connectivity with memory performance in older adults. *American Journal of Geriatric Psychiatry*, 26(6):690-699. doi: 10.1016/j.jagp.2018.03.003.

Causes and consequences of sleep disturbances in late-life

My work in sleep epidemiology has focused on the biological predictors and consequences of sleep disturbances. My findings support a model wherein aging-related sleep disturbances result from specific (overt or covert) disease processes, and are not an inevitable, universal outcome of aging itself. My research also suggests the consequences of sleep disturbances on non-suicide mortality (and potentially the brain) are mediated by disease processes including systemic pro-inflammatory cytokines. This research suggests modifying specific aspects of sleep can improve health in specific subgroups of older adults.

1. **Smagula SF**, Stone KL, Redline S, Ancoli-Israel S, Barrett-Connor E, Lane NE, Orwoll E, Cauley JA. (2016). Actigraphy and polysomnography measured sleep disturbances, inflammation, and mortality among older men. *Psychosomatic Medicine: Journal of Biobehavioral Medicine*, 78(6):686-696. doi: 10.1097/PSY.0000000000000312.
2. **Smagula SF**, Koh W, Wang R, Yuan J. (2016). Chronic disease and lifestyle factors associated with change in sleep-duration among older adults in the Singapore Chinese Health Study. *Journal of Sleep Research*, 25(1):57-61. doi: 10.1111/jsr.12342.

3. **Smagula SF**, Stone KL, Fabio A, Cauley JA. (2016). Risk factors for sleep disturbances in older adults: evidence from prospective studies. *Sleep Medicine Reviews*, 25:21-30. doi: http://dx.doi.org/10.1016/j.smrv.2015.01.003.
4. **Smagula SF**, Harrison S, Cauley JA, Ancoli-Israel S, Cawthon PM, Cummings S, and Stone KL for the Osteoporotic Fractures in Men (MrOS) Research Group. (2017). Determinants of change in objectively assessed sleep duration among older men. *American Journal of Epidemiology*, 185(10):993-940. doi: 10.1093/aje/kwx014.

D. Additional Information: Research Support and/or Scholastic Performance Past Research Support

T32 Aging Epidemiology, PI: Anne B. Newman, MD
08/13 - 12/14
Role: Trainee

T32 Clinical and Translational Research in Geriatric Psychiatry, PI: Charles F. Reynolds III, MD
01/15 - 12/17
Role: Trainee

T32 Translational Research Training in Sleep Medicine, PI: Daniel J. Buysse, MD
01/17 - 04/17
Role: Trainee

Current Research Support

K01 MH112683 Total costs: \$774,110
4/1/2017 - 3/31/2022 Depression in Dementia Caregivers: Linking Brain Structure and Sleep-wake Risks
Role: PI

To test and refine a model wherein specific sleep-wake activity disturbances are associated with brain structural changes affecting the key networks underlying late-life depression risk in older dementia caregivers.



Preparing Your NIH Biosketch: Dos

- Personalize the personal statement and contributions sections
- Include the application title and Principal Investigator
- For different types of applications, you can emphasize
 - Sample/population
 - Research focus
 - Study type (e.g., mechanistic, intervention)
 - Research vs. training
- Proofread to make sure you don't have embarrassing “remnants” from prior biosketches
- Make sure you actually understand the application and your role in it



Preparing Your NIH Biosketch: Don'ts

- Use a generic Biosketch
- Fail to update your references and publications
- Let someone else do it for you
- Have a mis-match between your Biosketch and the Budget Justification (roles, % effort)
- Think it doesn't matter



