## CURRICULUM VITAE

Jeffrey M. Ellenbogen, MMSc, MD

September 24, 2018



## **CURRENT ACTIVITIES**

2013 – present Director

The Sound Sleep Project<sup>TM</sup>

2016 – present Firefighter

Providence Volunteer Fire Co (Station 29, Baltimore County)

## **DEMOGRAPHIC INFORMATION**

jeffrey.ellenbogen@gmail.com

website:

www.jeffreyellenbogen.com

## **EDUCATION & TRAINING**

Undergraduate

1994 University of Michigan, Ann Arbor, MI B.A., History of Art (with High Distinction)

Doctoral/graduate

2000 Tufts University School of Medicine, Boston, MA

M.D. (Doctor of Medicine)

2007 Harvard Medical School, Boston, MA

M.M.Sc. (Masters in Medical Science)

Postdoctoral

2000-2001 University of Pennsylvania, Philadelphia, PA

Intern, Internal Medicine

2001-2004 University of Pennsylvania, Philadelphia, PA

Resident, Neurology

2004-2005 University of Pennsylvania, Philadelphia, PA

Fellow, Clinical Electrophysiology

2005-2007 Harvard Medical School, Boston, MA

Postdoctoral Fellow in Sleep, Circadian and Respiratory Neurobiology

2016-2017 Maryland Fire and Rescue Institute (MFRI)

Firefighter 1

## PROFESSIONAL EXPERIENCE

2007-2012 Massachusetts General Hospital, Boston, MA

Director, Sleep Division Director, Sleep Laboratory Staff Neurologist

2007-2009 Harvard Medical School, Boston, MA

Instructor, Neurology

2009-2012 Harvard Medical School, Boston, MA

Assistant Professor, Neurology and Sleep Medicine

2013-2018: The Johns Hopkins University School of Medicine

Assistant Professor, Neurology Sleep Medicine Specialist

### RESEARCH ACTIVITIES

## • Peer Reviewed Original Science Publications

- 1. Soutter AD, **Ellenbogen J**, Folkman J. Splenosis is regulated by a circulating factor. *Journal of Pediatric Surgery*. 1994;29:1076-9.
- 2. Wolfe J, Grier HE, Klar N, Levin SB, **Ellenbogen JM**, Salem-Schatz S, Emanuel EJ, Weeks JC. Symptoms and suffering at the end of life in children with cancer. *New England Journal of Medicine*. 2000;342:326-33.
- 3. Kolb SJ, Costello F, Lee AG, White M, Wong S, Schwartz ED, Messe SR, **Ellenbogen J**, Kasner SE, Galetta SL. Distinguishing ischemic stroke from the stroke-like lesions of MELAS using apparent diffusion coefficient mapping. *Journal of Neurological Sciences*. 2003;216:11-15.
- 4. **Ellenbogen JM**, Hulbert JC, Stickgold R, Dinges DF, Stickgold R, Thompson-Schill SL. Interfering with theories of sleep and memory: Sleep, declarative memory and associative interference. *Current Biology*. 2006;16:1290-1294
- 5. **Ellenbogen JM**, Hu PT, Payne JD, Titone D, Walker MP. Human relational memory requires time and sleep. *Proceedings of the National Academy of Science, U S A (PNAS).* 2007;104:7723-8.
- 6. **Ellenbogen JM**, Hulbert JC, Jiang Y, Stickgold R. The Sleeping Brain's Influence on Verbal Memory: Boosting Resistance to Interference. *PLoS One*. 2009;4:e4117.
- 7. Dang-Vu TT, McKinney SM, Buxton OM, Solet JM, **Ellenbogen JM**. Spontaneous brain rhythms predict sleep stability in the face of noise. *Current Biology*. 2010;20:R626-R627.
- 8. McKinney SM, Dang-Vu TT, Buxton OM, Solet JM, **Ellenbogen JM**. Covert waking brain activity reveals instantaneous sleep depth. *PLoS One*. 2011;6:e17351.
- 9. Babadi B\*, McKinney SM\*, Tarokh V, **Ellenbogen JM**. Data-Driven Bayesian Algorithm for Sleep Spindle Detection (DiBa). *IEEE Transactions in Biomedical Engineering*. 2012;59(2):483-93.
- 10. Payne JD Payne JD, Tucker MA, **Ellenbogen JM**, Wamsley EJ, Walker MP, Schacter DL, Stickgold R. Memory for Semantically Related and Unrelated Declarative Information: The Benefit of Sleep, the Cost of Wake. *PLoS One.* 2012;7:e33079
- 11. Buxton OM\*, Ellenbogen JM\* (co-first author), Wang W, Carballeira A, O'Connor S, Cooper D, Gordhandas

## **EXHIBIT A18-1**

- AJ, McKinney SM, Solet JM. Sleep Disruption Due to Hospital Noises: A Prospective Evaluation. *Annals of Internal Medicine*. 2012; 157:170-179.
- 12. Shaw ND, Butler JP, McKinney SM, Nelson SA, **Ellenbogen JM**, Hall JE. Insights into Puberty: The Relationship Between Sleep Stages and Pulsatile LH Secretion. *The Journal of Clinical Endocrinology and Metabolism*. 2012;97:E2055-62.
- 13. Fellin T, **Ellenbogen JM**, De Pitta M, Ben-Jacob E, Halassa M. Astrocyte Regulation of Sleep Circuits: Experimental and Modeling Perspectives. *Frontiers in Computational Neuroscience*. 2012;6:65.
- 14. Eiseman NA, Westover MB, **Ellenbogen JM**, Bianchi MT. The impact of body posture and sleep stages on sleep apnea severity in adults. *Journal of Clinical Sleep Medicine*. 2012;8:655-6.
- 15. Bianchi MT, Williams KL, McKinney SM, **Ellenbogen JM**. The subjective-objective mismatch (SOM) in sleep perception among those with insomnia and sleep apnea. *The Journal of Sleep Research*. 2013;22(5):557-568.
- 16. Marino, M, Li Y, Rueschman MD, Winkelman JW, **Ellenbogen JM**, Solet JM, Dulin H, Berkman LF, Buxton OM. Measuring Sleep: Accuracy, Sensitivity, and Specificity of Wrist Actigraphy Compared to Polysomnography. *Sleep.* 2013;36(11):1147-1155.
- 17. Pace-Schott EF, Tracy LE, Rubin Z, Mollica AM, **Ellenbogen JM**, Bianchi MT, Milad MR, Pitman RK, Orr SP. Interactions of time of day and sleep with between-session habituation and extinction memory in young adult males. *Experimental Brain Research*. 2014.
- Prerau MJ, Hartnack KE, Obregon-Henao G, Sampson A, Merlino M, Gannon K, Bianchi MT, Ellenbogen JM, Purdon PL. Tracking the Sleep Onset Process: An Empirical Model of Behavioral and Physiological Dynamics. PLOS Computational Biology. 2014.
- 19. Alameddine Y, **Ellenbogen JM**, Bianchi MT. Sleep-Wake Time Perception Varies by Direct or Indirect Query. *Journal of Clinical Sleep Medicine*. 2015.
- 20. Prerau MJ, Bianchi MT, Brown RE, **Ellenbogen JM**, Patrick PL. Sleep neurophysiologic dynamics through the lens of multitaper spectral analysis. *Physiology*. 2017.
- 21. Akeju O, Hobbs LE, Gao L, Burns SM, Pavone KJ, Plummer GS, Walsh GS, Houle TT, Kim SE, Bianchi MT, **Ellenbogen JM**, Brown EN. Dexmedetomidine promotes biomimetic non-rapid eye movement stage 3 sleep in humans: A pilot study. *Clinical Neurophysiology*. 2017.
- 22. Gottlieb DJ, **Ellenbogen JM**, Bianchi MT, Czeisler CA. Sleep deficiency and motor vehicle crash risk in the general population: a prospective cohort study. *BMC Medicine*. 2018.

## Other Peer Reviewed Original Publications

### Reviews or Opinion

- 1. **Ellenbogen JM**, Payne JD, Stickgold R. The role of sleep in declarative memory consolidation: passive, permissive or active or none? *Current Opinion in Neurobiology*. 2006;16:716-22.
- 2. **Ellenbogen JM**, Grace S, Heiger-Bernays WJ, Manwell JF, Mills DA, Sullivan KA, Weisskopf MG. Wind Turbine Health Impact Study: Report of Independent Expert Panel. Report for the Massachusetts Department of Environmental Protection. 2012.
- 3. **Ellenbogen JM.** Pace-Schott EF. Drug-induced sleep: Theoretical and practical considerations. *Pflugers Archiv European Journal of Physiology.* 2012;463(1):177-186.

- 4. **Ellenbogen JM.** Noise-induced sleep disruption among hospitalized patients: Brain-based approaches toward sleeping soundly on noisy nights. *Noise-Con.* 2013.
- 5. Ellenbogen JM. Sleepiness. Seminars in Neurology. 2016.
- 6. Ellenbogen,, JM, Guay, Christian. Emergency Sleep Medicine. Seminars in Neurology. 2017.

### **Editorials**

- 1. Ellenbogen JM. Cognitive benefits of sleep, and their loss due to sleep deprivation. Neurology. 2005;64:E25-7.
- 2. Bianchi MT, Thomas RJ, **Ellenbogen JM**. Hypnotics and Mortality Risk. *The Journal of Clinical Sleep Medicine*. 2012;8(4):351-352

## Case Reports

- 1. Aguirre GK, **Ellenbogen JM**, Pollard J, Stolzenberg ED, Galetta SL. Amyloid angiopathy. *Neurology*. 2002;59:1656.
- 2. Ances BM, **Ellenbogen JM**, Herman ST, Jacobs D, Liebeskind DS, Chatterjee A, Galetta SL. Balint's syndrome due to Creutzfeldt-Jakob disease. *Neurology*. 2004;63:395.
- 3. Roy S, Ellenbogen JM. Pathologic quiz case: seizures, frontal lobe mass and remote history of periodontal abscess. *Archives of Pathology & Laboratory Medicine*. 2005;129:805-6.
- 4. **Ellenbogen JM**, Hurford MO, Liebeskind DS, Neimark GB, Weiss D. Ventromedial frontal lobe trauma. *Neurology* 2005;64:757.
- 5. Ellenbogen JM. Sleep-Specific Atrioventricular Block. Neurology. 2010;74:90
- 6. Mesarwi OA, **Ellenbogen JM**, Polotsky VY. A patient with unusual electroencephalographic findings during rapid eye movement sleep. *Annals of the American Thoracic Society*. 2014.

## Letters, correspondence

- 1. **Ellenbogen JM**. Letter (to the science editor). "Waking to the possibilities." <u>The New York Times</u> 15 Nov., 2005.
- 2. Ellenbogen JM. Letter. "Unsafe highways." The New York Times, 17 Dec., 2006.
- 3. Ellenbogen JM. Letter. "A key teen lesson: Don't drive drowsy." The Boston Globe, 2 Jan., 2007.
- 4. Ellenbogen, JM. Letter. "Sleepless in New York." The New York Times, 11 Oct., 2007.
- 5. Ellenbogen JM. Letter. "The sleep-industrial complex." The New York Times Sunday Magazine 2 Dec., 2007.
- 6. Ellenbogen JM. Letter. "My Dream: For a Good Night's Sleep." The New York Times 26 Sept., 2016.
- 7. Ellenbogen JM. Letter. "Sleep and the Biological Clock." The New York Times 13 March, 2017.

## Book Chapters, Monographs

1. **Ellenbogen JM**. The interaction of sleep and memory. In: Chebykin OY, Bedny GB, Karwowski W, eds. *Ergonomics and Psychology: Developments in Theory and Practice*. Taylor and Francis Group; 2008.

- 2. Dang-Vu TT, Foulkes D, Cartwright RD, Ellenbogen JM. Sleep. Encyclopaedia Britannica. 2010.
- 3. **Ellenbogen JM**. Noise-induced sleep deprivation: Toward sleeping soundly on noisy nights. In: Bianchi MT. *Sleep Deprivation: Effects on Mind, Body, and Disease.* Springer New York Heidelberg Dordrecht London; 2013.
- 4. Geyer MB, **Ellenbogen JM**. Insomnia and Sleep Disorders. In: Kiefer MM, Chong CR, eds. Pocket Primary Care: A Massachusetts General Hospital Handbook. Philadelphia: Lippincott Williams & Wilkins; 2014.

## **Teaching**

#### Classroom instruction

1999 - 2000 "Problem-Based Learning," Instructor, Tufts University School of Medicine (Boston, MA) "The Sleeping Brain" (Neurobiology 95hf), Instructor, Harvard University (Cambridge, MA)

### Clinical instruction

2013 - present Inpatient neurology service. Attending physician, 4-6 weeks each year, Johns Hopkins 2013 - present Outpatient sleep medicine service. Attending physician, ½ day per week Johns Hopkins

### CME instruction

2008 - 2012 Annual Psychiatry Course, lecturer, "Psychopharmacology of Sleep," Mass General Hospital

### **CERTIFICATIONS**

### Medical licenses:

2004 - 2008 Pennsylvania # 424784 (inactive) 2005 - 2014 Massachusetts # 226436 (inactive) 2013 - present Maryland # D0075375 (active)

## Boards Memberships:

2005 - present Neurology (American Board of Psychiatry and Neurology); 2009 - present Sleep Medicine (American Board of Psychiatry and Neurology)

### ORGANIZATIONAL ACTIVITIES

### **Editorial Activities**

• Editorial Board appointments

2012 - present Sleep
 2013-2015 National Science Foundation (NSF), College of Reviewers
 2017, 2018 Seminars in Neurology, guest editor

# • Journal Reviewer

2007 - present Neurology
2008 - present Journal of Clinical Sleep Medicine
2008 - present Journal of Sleep Research
2008 - present Sleep
2008 - present CNS: Neuroscience and Therapeutics
2008 - present PLoS One
2009 - present Journal of Cognitive Neuroscience

## **EXHIBIT A18-1**

2010 - present Current Biology

2013 - present Transactions in Biomedical Engineering (TBME)

## **Professional Societies**

2001 - present Member, American Academy of Neurology
 2004 - present Fellow, American Academy of Sleep Medicine

## **RECOGNITION**

# Awards, Honors

Branstrom Prize for Academic Excellence, University of Michigan
Outstanding Abstract, Sleep Research Society
Certificate of Distinction in Teaching, Harvard University (Received this award each of the
six years that I taught this course in neurobiology on sleep neurosciences)
Fellow, American Academy of Sleep Medicine
John E. Dowling Teaching Award in Neurobiology, Harvard University
Wayne A. Hening Sleep Medicine Investigator Award, American Academy of Neurology
International Award for Publishing Excellence (Journal of Clinical Endocrinology and
Metabolism, JCEM) for authoring one of the top 14 best clinical research papers in JCEM in
2012.
Firefighter training award, (station 29), Baltimore County Fire Department

# OTHER PROFESSIONAL ACCOMPLISHMENTS

2009 - 2010	Physician Leadership Development Program, Massachusetts General Hospital
2014 - 2015	Junior Faculty Leadership Program, Johns Hopkins Hospital