

CURRICULUM VITAE  
The Johns Hopkins University School of Medicine



January 21, 2019

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Eric L. Singman, MD PhD

**DEMOGRAPHIC AND PERSONAL INFORMATION**

**Current Appointments**

- 2011-present Division Chief, Wilmer General Eye Services
- 2018-present Medical Director for Clinical Operations, Office of Johns Hopkins Physicians

**Personal Data**

Business Address: Wilmer General Eye Services, Wilmer B-29, 600 N. Wolfe St., Baltimore, MD 21287  
Tel 410 955 9976  
Fax 410 614 8496  
E-mail [esingma1@jhmi.edu](mailto:esingma1@jhmi.edu)

**Education and Training**

- 1982 BA Chemistry, Brooklyn College, Brooklyn. Summa Cum Laude
- 1992 MD, Downstate Medical School, Brooklyn
- 1992 PhD, Neural and Behavioral Sciences, Downstate School of Graduate Studies, Brooklyn. Mentor: Dr. Franklin R. Scalia, PhD.
- 1992-3 PGY-1, Pediatrics, Brookdale Hospital Medical Center, Brooklyn
- 1993-6 PGY-2-4, Ophthalmology, Downstate Medical Center, Brooklyn
- 1996-7 PGY-5 Neuro-ophthalmology, Kingsbrook Jewish Medical Center, Brooklyn. Mentor: Dr. Arthur H. Wolintz, MD, Distinguished Professor SUNY.

**Professional Experience**

- 1997-2001 Neuro-ophthalmologist, Eye Specialists of Lancaster, Lancaster, PA
- 2001-2011 Neuro-ophthalmologist, Family Eye Group, Lancaster, PA
- 2005-2011 Neuro-ophthalmologist for Lancaster Rehabilitation Hospital
- 2007-2011 Neuro-ophthalmologist, Sinai Hospital of Baltimore, Berman Brain and Spine Institute Comprehensive Concussion Center
- 2010 Neuro-ophthalmologist Consultant to Dept. of Defense Vision Center of Excellence through the program management office of General Dynamics Information Technology
- 2014-present Consultant to Computer Technology Associates, creator of software to explore large medical databases
- 2018-present District Medical Adviser, Federal Occupational Health Workers Compensation Program, US DHHS (Contractor: Ingensis)
- 2018-present Subject Matter Expert to DoD VA on medical economics related cost of vision system damage and ocular trauma (Contractor: Knowesis)

**PUBLICATIONS**

**Peer Reviewed Research [PR]**

1. Howell JM\*, Sapse AM, **Singman EL**, Snyder G. Ab Initio SCF Calculations of NO<sub>2</sub> (H<sub>2</sub>O)<sub>n</sub> and NO<sub>3</sub> (H<sub>2</sub>O)<sub>n</sub> Clusters. *J. Phys. Chem.* 1982; 86:2345-2349.
2. Herzig L, Howell JM\*, Sapse AM, **Singman EL**, Snyder G. Ab Initio Studies of Methyllithium Clusters. *J. Phys. Chem.* 1982; 77:429-433.
3. Howell JM\*, **Singman EL**, Sapse AM, Snyder G. Electronic Structure of Bridged Dialuminum Compounds. *J. Amer. Chem. Soc.* 1982; 104:4785-4789.
4. Scalia F\*, Arango V, **Singman EL**. Loss and Displacement of Ganglion Cells after Optic Nerve Regeneration in Adult Rana pipiens. 1985; *Brain Res.* 344:267-280.
5. **Singman EL**, Scalia F\*. Further Study of the Outward Displacement of Retinal Ganglion Cells During Optic Nerve Regeneration, with a Note on the Normal Cells of Dogiel in the Adult Frog. *J. Comp. Neurol.* 1990; 301:1-13.
6. **Singman EL**, Scalia F\*. Quantitative Study of the Tectally Projecting Retinal Ganglion Cells in the Adult Frog. I. The Size of the Contralateral and Ipsilateral Projection. *J. Comp. Neurol.* 1990; 302:792-809.
7. **Singman EL**, Scalia F\*. Quantitative Study of the Tectally Projecting Retinal Ganglion Cells in the Adult Frog. II. Cell Survival and Functional Recovery after Optic Nerve Regeneration. *J. Comp. Neurol.* 1991; 307:351-369.
8. Kirschenbaum L, Howell JM\*, **Singman EL**. A Theoretical Study of Some Possible Alkylolithium Hexamers, *Structural Chemistry.* 1996; 7:79-83.
9. Matta NS\*, **Singman EL**, McCarus C. Lyme Disease and Convergence Insufficiency: Is it a near fit ? *American Orthoptic J* 2006; 56:147-150.
10. Silbert DI, Matta NS\*, **Singman EL**. Vision Screening in Pennsylvania Dutch Country: How Accurate is the PlusOptix? *Trans. Internatl. Orthoptic Congress.* 2008; XI:26-29.
11. Matta NS\*, **Singman EL**, Silbert DI. The Matta Map: A New Method of Measuring Incomitant Strabismus. *Am Orthoptic J* 2008; 58:88-91.
12. Matta NS\*, **Singman EL**, Silbert DI. Performance of the Plusoptix Vision Screener for the Detection of Amblyogenic Risk Factors in Children. *JAAPOS* 2008; 12:490-2.
13. Matta NS\*, Arnold RW, **Singman EL**, Silbert DI. Comparison between the Plusoptix and MTI Photoscreeners. *Arch Ophth* 2009; 127:1591-5.
14. Matta NS\*, **Singman EL**, Silbert DI. Performance of the plusoptiX S04 photoscreener for the detection of amblyopia risk factors in children age 3 to 5. *JAAPOS* 2010; 14:147-9.
15. Matta NS\*, **Singman EL**, McCarus C, Matta E, Silbert DI. Screening for Amblyogenic Risk Factors Using the plusoptiX S04 Photoscreener on the Indigent Population of Honduras. *Ophthalmology* 2010; 117:1848-50.
16. Matta NS\*, **Singman EL**, Silbert DI. Prevalence of Amblyopia Risk Factors in Congenital Nasolacrimal Duct Obstruction. *JAAPOS* 2010; 14:386-8.
17. **Singman EL**\*, Matta NS, Silbert DI. Use of the Cogan Lid Twitch to Identify Myasthenia Gravis. *J Neuroophthalmol* 2011; 31:239-40.
18. Matta N\*, **Singman EL**, Brubaker C, Silbert DI. Auto-objective Accommodative Measurements as a Valid and Reliable New Method of Pediatric, Strabismus and Amblyopia Vision Screening. *Binocul Vis & Strab Quart.* 2011; 26:140-145.
19. **Singman E**, Matta N\*, Fairward A, Silbert D. Evaluation of plusoptiX Photoscreening During Examinations of Children with Autism. *Strabismus* 2013. 21(2):103-5.
20. **Singman E**, Matta N\*, Tian J, Silbert D. Association between Accommodative Amplitudes and Amblyopia. *Strabismus* 2013. 21(2):137-9.
21. **Singman E**, Matta N\*, Tian J, Brubaker A, Silbert D. A Comparison of the plusoptiX S04 and A09 Photoscreeners. *Strabismus* 2013. 21(2):85-7.
22. **Singman EL**, Matta NS\*, Silbert DI, Tian, J. Comparison of the INNOVA Visual Acuity System Stereotest with the Frisby-Davis 2 Stereotest for the evaluation of distance stereoacuity. *Binocul Vis & Strab Quart.* 2013; 28:78-83.
23. **Singman EL**, Matta NS\*, Tian J, Silbert DI. A Comparison of referral criteria used by the PlusoptiX photoscreener. *Strabismus* 2013. 21(3):190-4.
24. Silbert J; Matta NS\*, Tian J, **Singman EL**, Silbert DI. Pupil Size and Anisocoria in Children Measured by the plusoptiX Photoscreener. *JAAPOS* 2013. 17(6):609-11.
25. Silbert DI, Matta NS\*, Quintanal A, **Singman EL**. Incidence of amblyopia risk factors in children with nasolacrimal duct obstruction. *JAAPOS* 2013. 17(6):618.

26. **Singman EL**, Matta NS\*, Tian J, Silbert DI. The Accuracy of the Plusoptix for measuring pupillary distance. *Strabismus* 2014. 22(1):21-25.
27. Silbert DI, Matta N\*, Tian J, **Singman E**. Comparing the SureSight autorefractor and the plusoptiX photoscreener for pediatric vision screening. *Strabismus* 2014. 22(2):64-7.
28. **Peng MY**, Matta N\*, Silbert D, Tian J, **Singman E**. [Accuracy of the Retinomax K-plus3 in measuring refractive error in a pediatric population](#). *J AAPOS*. 2014 Aug;18(4):327-31.
29. **Singman EL\***, **Haberman CV**, Appelbaum J, Tian J, Shafer K, Toerper M, Katz S, Kelsay M, Boland MV, n Greenbaum M, Adelman R, Thomas RC, **Vakili S**. Electronic Tracking of Patients in an Outpatient Ophthalmology Clinic to Improve Efficient Flow: A Feasibility Analysis and Benchmarking Study. *Quality Health Care Management*. 2015 Oct-Dec; 24(4):190-99. [SI/QI]
30. **Singman EL\***, Matta NS, Tian J, Silbert DI. Comparing visual acuity measured by Lea symbols and Patti Pics. *Am Orthoptic Jnl*. January 2015. 65:94-8.
31. **Vakili S\***, **Pandit R**, **Singman EL**, Appelbaum J, Boland MV. A comparison of commercial and custom-made electronic tracking systems to measure patient flow through an ambulatory clinic. *Int J Health Geographics*. 2015. 14(32):23-7. [SI/QI]
32. **Singman EL\***, Srikumaran D, Hackett K, Kaplan B, Preece D, Jun A, Ramulu P. Benchmarking the Wilmer General Eye Services clinics: Baseline metrics for surgical and outpatient clinic volume in an educational environment. *BMC Med Ed*. 2016. 16(9). <http://bmcomeduc.biomedcentral.com/articles/10.1186/s12909-016-0556-x> [SI/QI]
33. Gad K\*, Yousem D, Pillai J, **Singman EL**, Rohini N. Computed Tomography in the Evaluation of Acute Injuries of the Anterior Eye Segment. *American Journal of Roentgenology* 2017 Sep 27:1-7.
34. **Singman, EL**, Srikumaran D, Green L, Tian J, McDonnell P. Supervision and Autonomy of Ophthalmology Residents in the Outpatient Clinic in the United States: A survey of ACGME-accredited programs. *BMC Med Ed*. 2017. 17:105 DOI 10.1186/s12909-017-0941-0. [SI/QI]
35. **Lee MS**, **Barnett B**, Tian J, McCabe S, **Singman EL\***. Validity of measurements when re-using Icare probes. *Biomedical Instrumentation and Technology*. 2017. Nov/Dec 51(6):468-473 [SI,QI].
36. Lee B, D'Souza M, **Singman EL**, Wang J, Woreta FA, Boland MV, Srikumaran D. Integration of a Physician Assistant into an Ophthalmology Consult Service in an Academic Setting. *Am. J Ophthalmol*. 2018. Mar 28 epub ahead of print: [SI, QI]. DOI: <https://doi.org/10.1016/j.ajo.2018.03.033>
37. **Johnson TV**, Ramulu PY, Quigley HA, **Singman EL**. Low sensitivity of the van Herick method for detecting gonioscopic angle closure independent of observer expertise. *Am J. Oph*. 2018. Nov; 195:63-71/ Jul 30. Epub ahead of print. [SI,QI]. doi: 10.1016/j.ajo.2018.07.026. [SI/QI]
38. **Singman EL**, **Doyle JJ**. Angioid streaks are not a common feature of Ehlers Danlos syndrome. *JAMA Ophthalmology*. Published online December 13, 2018. doi:10.1001/jamaophthalmol.2018.5995.
39. Frick KD, **Singman EL**. Cost of military eye injury and vision impairment related to traumatic brain injury: 2001-2017. *Mil Med*. In press.

**Note:** *I have been an investigator for the Pediatric Eye Disease Investigator Group (PEDIG) (recruiting and examining patients). For this reason, I have been listed as an author searchable in PubMed for a number of publications by this organization. I have not included those publications in my CV but can provide them upon request.*

#### Invited Review Articles [RA]

1. Matta NS\*, **Singman EL**, Silbert DI. Evidence-Based Medicine: Treatment for Amblyopia. *Amer. Orthoptic Jnl*. 2010; 60:17-22.
2. Matta NS\*, Arnold RW, **Singman EL**, Silbert DI. Can a Photoscreener Help Us Remotely Evaluate and Manage Amblyopia? *Am. Orthoptic J* 2011; 61:124-27.
3. **EL Singman**. Automating the assessment of visual dysfunction after traumatic brain injury. *Medical Instrumentation*. 2013. Vol 1, Article 3 (6 pages). <http://www.hoajonline.com/medicalinstrumentation/2052-6962/1/3>. Note: this article has been referenced by the American Academy of Ophthalmology on the web page <https://www.aao.org/eyenet/article/traumatic-brain-injury-visual-disorders-what-every-2>.
4. **Singman EL**, Matta NS\*, Silbert DI. Nonsurgical Treatment of Neurologic Diplopia. *American Orthoptic Journal*. 2013. Vol. 63:63-68.
5. **Barnett B**, **Singman EL\***. Visual Concerns after Mild Traumatic Brain Injury. *Current Treatment Options in Neurology*. 2015, Vol. 17(5); <http://download.springer.com/static/pdf/688/art%253A10.1007%252Fs11940->

[014-0329-y.pdf?auth66=1422370528\\_d3ca9e03454c58d09154abdd6307f85b&ext=.pdf](#)

6. **Singman EL\***, Daphalapurkar N, White H, Nguyen TD, Panghat L, **Chang J**, McCulley T. Indirect traumatic optic neuropathy. *Military Med Res.* Dec 2016. 3(2). <http://link.springer.com/article/10.1186%2Fs40779-016-0069-2>
7. Henderson FC Sr, Austin C, Benzel E, Bolognese P, Ellenbogen R, Francomano CA, Ireton C, Klinge P, Koby M, Long D, Patel S, **Singman EL**, Voermans NC. Neurological and spinal manifestations of the Ehlers-Danlos syndromes. *Am J Med Genet C Semin Med Genet.* 2017 Mar;175(1):195-211.
8. Padula WV, Capo-Aponte JE, Padula WV, **Singman EL**, Jenness J. The consequence of spatial visual processing dysfunction caused by traumatic brain injury (TBI), *Brain Injury*, DOI: 10.1080/02699052.2017.1291991

#### Case Reports [CR]

1. NS Matta\*, **EL Singman**. Exercise-Induced Esotropia. *Am Orthoptic J.* 2008; 58:76-78.
2. **Singman EL**, Matta NS\*, Silbert DI. Case Report: Migraine Caused by Abnormal Head Posture in a Patient with Ptosis. *Amer. Orthoptic Jnl.* 2010; 60:101-102.
3. Silbert DI, Matta NS\* and **Singman EL**: American Association of Certified Orthoptist Symposium 20/20 x 2: Diplopia After Ocular Surgery: Diplopia Secondary to Orbital Surgery. *Am Orthoptic J.* 2012; 62:22-28.
4. **Singman EL\***, Poon D, Jun AS. Putative Corneal Neuralgia Responding to Vitamin D Supplementation. *Case Reports in Ophthalmology.* 2013; 4:105-8. <http://www.karger.com/DOI/10.1159/000354965>
5. **Singman EL\***, Matta NS. Convergence insufficiency associated with migraine: A case series. *American Orthoptic J.* 2014; 64(1):112-6.
6. **Singman EL\***, Matta NS, Silbert DI. Silent sinus syndrome presenting after a roller coaster ride: a case report. *Am Orthopt J.* 2014; 64(1):123-5.
7. Van Landingham, **Singman EL\***. Consecutive cranial neuropathies following the use of phosphodiesterase-5 inhibitors. *Am Orthoptic J.* January 2015. 65:109-114.
8. **Singman EL\***, Hocum B, Yohannan J, Pearson V. Fluvoxamine-associated Oscillopsia and a Role for Personalized Medication Dosing: Case Report. *Drug Metabolism and Personalized Therapy.* 2015. Dec 1; 30(4):271-5.
9. Shin JY, Wahl B, Miller NR, **Singman EL\***. Exercise-induced esotropia: A case series. *Am Orthoptic J.* January 2015. 65:115-20.
10. T.Y. Alvin Liu, Craig See, **Eric Singman**, Ian C. Han. Delayed-onset Intraretinal Cystoid Abnormalities in Lightning Retinopathy. *JAMA Ophthalmology.* 2016. Jul 1;134(7):840-2.

#### Book Chapters, Monographs [BC]

1. **Singman EL**. Loss of Ganglion Cells and the Return of Vision During Optic Nerve Regeneration: Comparison with Normal Parameters. University Microfilms International, Ann Arbor, MI. 1992.
2. **Singman EL**. The PTC Primer of the Pseudotumor Cerebri Support Network. *Pseudotumor Cerebri in Rural America.* 2000; Chapter 4, p. D10-D13.
3. **Singman EL**. Roy & Fraunfelders' Current Ocular Therapy, 6th Ed. Uveitis. 2007; Chapter 288, pp. 532-534. Saunders/Elsevier.
4. **Singman EL**. Roy & Fraunfelders' Current Ocular Therapy, 6th Ed. Idiopathic Intracranial Hypertension. 2007; Chapter 115, pp. 216-219. Saunders/Elsevier.
5. Padula WV, **Singman EL**, Vicci V, Munitz R, Magrun M. *Brain Injury Medicine: Principles and Practice*, 2<sup>nd</sup> Ed. 2012; Zasler N, Katz D, Zafonte R (editors). Chapter 45: Evaluating and Treating Visual Dysfunction.
6. **Singman EL**, Gan Leung T. *Master Techniques in Ophthalmic Surgery*, 2<sup>nd</sup> ed. F. Hampton Roy and Renee Tindall, editors. Jaypee Brothers Medical Publishing, Philadelphia. 2015. Chapter 86, Section 9 (Iris & Ciliary Body) Intermediate Uveitis/Pars planitis pp. 595-600. 1125p.
7. **Singman EL**, Quaid P. *Neurosensory Disorders in Mild Traumatic Brain Injury*, 1<sup>st</sup> ed. Michael Hoffer and Carey Balaban, editors. Elsevier Academic Press. Published date 12 January 2019. Chapter 15: Vision Disorders. Pp 223-239.

Books, Textbooks [BK] -- None

Proceedings Reports [PR] – None

*Guidelines/Protocols, Consensus Statement, Expert Opinion, Consortium Articles [GL]*

**Expert Opinion**

1. Matta N, Silbert DI, **Singman EL**. Does nasolacrimal duct obstruction cause amblyopia? Expert Rev. Ophthalmol. 2012; 7(2), 103-4.
2. Singman EL, Johnson TV III. Invited expert commentary in Practice Update. <https://www.practiceupdate.com/content/low-sensitivity-of-the-van-herick-method-for-detecting-gonioscopic-angle-closure-independent-of-observer-expertise/71748/65/5/1>.

Methods and Techniques, “How I Do It” articles [MT] - None

Research Letters/White Papers/Brief Reports [RL] --None

Published Curricula [PC], Learner Assessment Tools, Educational Evaluations, Assessment/Evaluation Instruments [PC]—None

**Letters, Correspondence [LT]**

1. **Singman EL**. Re: "Solutions must be the answer". Pharos Alpha Omega Alpha Honor Med Soc. 2002 Fall;65(4):60-1.
2. **Singman EL**. Preferred practice pattern changes. Ophthalmology. 2004 Mar;111(3):610-1; author reply 611.
3. **Singman EL**. “Maybe Somewhere In Between?”. Eyenet. May 2015. P.10.

Media Releases or Interviews [MR] – (see Community Service for Interview)

**Other Media [OM] (Videos, Websites, Blogs, Social Media, etc.)**

1. **Singman, EL**. Vision and Rehabilitation after Brain Trauma: Parts 1-3. [www.health.mil](http://www.health.mil). 03-08-2010, 03-10-2010, 03-12-2010.
2. **Singman, EL**. Vision Center of Excellence Patient Information Sites
  - a. Nocturnal lagophthalmos ([http://vce.health.mil/resources/ES\\_Nocturnal\\_Lagophthalmos.aspx](http://vce.health.mil/resources/ES_Nocturnal_Lagophthalmos.aspx))
  - b. Vision and rehabilitation after brain trauma ([http://vce.health.mil/resources/ES\\_MAR2010.aspx](http://vce.health.mil/resources/ES_MAR2010.aspx))
  - c. Death, taxes and cataracts – Cataractogenesis (<http://vce.health.mil/resources/Cataractogenesis.pdf>)
  - d. Cranial nerve 4 palsy after traumatic brain injury ([http://vce.health.mil/resources/Cranial\\_Nerve\\_4\\_Palsy\\_after\\_Traumatic\\_Brain\\_Injury.pdf](http://vce.health.mil/resources/Cranial_Nerve_4_Palsy_after_Traumatic_Brain_Injury.pdf))
  - e. Eye safety awareness ([http://vce.health.mil/resources/Eye\\_Safety\\_Awareness.pdf](http://vce.health.mil/resources/Eye_Safety_Awareness.pdf))
  - f. The Ophthalmology of TBI-Associated Sleep Apnea ([http://vce.health.mil/resources/TBI\\_Sleep\\_Apnea.pdf](http://vce.health.mil/resources/TBI_Sleep_Apnea.pdf))
  - g. Introducing Standard Work to the General Eye Services Clinic <http://webcast.jhu.edu/Mediasite/Play/4008d96dbd3443e79e96df43b998a7861d>
  - h. Chiari and Syringomyelia Foundation presents PTC, Chiari, Sticky Blood and EDS: The ophthalmologic connection. <https://www.youtube.com/watch?v=jsFbdb882wQ>.
    - i. Chiari and Syringomyelia Foundation half-day Colloquium: Neuro-ophthalmology of Connective Tissue Disorders. <https://www.youtube.com/watch?v=ZxIzULab9a0>.

**FUNDING****EXTRAMURAL**

Research Extramural Funding – None (All my research on clinical operations has been self-funded)

**Educational Extramural Funding:**

2018 \$100K Grant from John Talamo, Chief Medical Officer of Johnson & Johnson Vision to support the online course “Name Your Price”, to be conducted Academic Year 2019-20 and annually thereafter. This course will guide senior residents and fellows as they enter employment.

Clinical Extramural Funding – None

System Innovation or Quality Improvement Extramural Funding - None

### Other Extramural Funding, including philanthropy

2011-present	Philanthropy from grateful patients benefitting from the Wilmer Same-Day Program; \$2000
2011-present	Philanthropy from grateful patients benefitting from the Wilmer Vision-after-Brain Injury Clinic; \$19,000
2011-2018	Expert Witness fees for patients visiting the Wilmer Vision-after-Brain Injury Clinic directed to purchasing equipment for the residents' clinic; \$70,000*
2014-2018	Consultant fees from Computer Technology Associates to support software to explore large electronic databases and create a new electronic medical record for the military, directed toward purchasing equipment for the residents' clinic; \$5000*
2018	John J. Leidy Foundation (competitive grant) for \$3300 to pay for a new Icare tonometer (the remaining \$740 was covered by the gift grant I created with the resident equipment gift fund to which I directed outside income)

\*In 2018, Johns Hopkins Hospital policy required these fees to be taken as income and so I am no longer able to direct monies I generate from consulting directly toward the philanthropic account supporting the purchase of equipment for the resident clinic. Items purchased to date include a portable slit lamp, portable Welch Allyn auto-refractor, portable Perkins tonometer, Lens-Star Biometry system with software licenses to enter data into Oculab, PentaCam with software licenses to enter data into Oculab, YAG laser, Accutome Portable Ophthalmic Sonogram with Laptop and software licenses to enter data into Oculab, teaching scopes for every slit lamp in the clinic, a Tangent screen perimeter, an Icare tonometer, outfitting the slit lamp in the adult ED with a slit-lamp camera that loads images into EPIC including licenses to load images into Oculab, outfitting the slit-lamp camera in the clinic with a wall-mounted large screen for teaching and patient communication enhancement, another large screen TV for the patient waiting area and weekly snacks for the resident break-room. In addition, funds were used to sponsor a Wilmer Resident Association Research Grant.

### INTRAMURAL Funding

#### Research Intramural Funding

2016-17	(current) Development of Smartphone Based Headgear for Diagnosing Concussions. Identification number: NA Sponsor: JHU Student Initiatives Fund Total direct cost: \$1000 Principal Investigator: Aseem Jain (JHU undergraduate), Faculty Sponsor: Eric Singman % Effort NA
2015-present	(current) The Biomechanics of indirect traumatic optic neuropathy: a multimodal approach using cadaver experiments and finite element analysis Identification number: NA Sponsor: Wilmer Pooled Professor Fund and Research to Prevent Blindness Total direct cost: \$50,000 Principal Investigator: Eric L. Singman 5% Effort:

#### Educational Intramural Funding --None

#### Clinical Intramural Funding

2011	Providing a Cirrus OCT to the Wilmer GES Sponsor: Women's Board of the Johns Hopkins Hospital Total Direct cost: \$58,000
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2012	Providing teaching scopes to all slit lamps in the Wilmer GES Sponsor: Women's Board of the Johns Hopkins Hospital Total Direct cost: \$44,443
2018	Providing a Pentacam to the Wilmer GES Sponsor: Women's Board of the Johns Hopkins Hospital Total Direct cost: \$53,790

System Innovation or Quality Improvement Intramural Funding -- None  
Other Intramural Funding:--None

## CLINICAL ACTIVITIES

### Clinical Focus

Vision after Brain Injury Clinic (established 2015): I established one of the only ophthalmology-hosted clinics in the nation dedicated to the evaluation and treatment of patients with the complex vision complaints caused by traumatic brain injury. It has attracted local, national and international attention. Learners in the clinic have included trainees from neurology, ophthalmology, neuro-psychology, OT, PT, as well as optometrists, rehabilitation specialists from Kennedy Krieger Institute and vision specialists from the US military. The work in this clinic has garnered invitations to author review articles for both Military Medicine Research (a PubMed-indexed journal and the official medical publication of the Peoples' Liberation Army (Peoples' Republic of China)) as well as for Current Treatment Options in Neurology, and to review grants sponsored by the US Dept. of Defense toward the support of research focused on trauma to the visual system. The reviews I have written were developed into a podcast for the DoD Vision Center of Excellence (review 5)<sup>1</sup> and treatment guidelines for DoD first responders and eye specialists (review 5)<sup>2</sup> and were highlighted in an interview with DoD eye specialists featured in EyeNet Magazine (review 3)<sup>3</sup>.

1. <http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwiH2cmGk87KAhWBVSYKHcxqAkMQFggoMAE&url=http%3A%2F%2Fvce.health.mil%2FResources%2FProducts%2FAdditional-Resources%2FVision-Concerns-after-Mild-Traumatic-Brain-Injury-Podcast-Transcript&usg=AFQjCNGLMG9948gzBFTWkyM2fRxJyCAhFA&bvm=bv.113034660,d.eWE>
2. [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0ahUKEwiirunpk87KAhXB7iYKHZtnDAkQFgg2MAO&url=http%3A%2F%2Fwww.va.gov%2FOptomtry%2Fdocs%2FVCE\\_OMS\\_Eye\\_Care\\_Provider\\_CR\\_11FEB2015\\_FINAL.pdf&usg=AFQjCNGtxx6RoZyHd-EhUXi1OiCM0llmZg](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0ahUKEwiirunpk87KAhXB7iYKHZtnDAkQFgg2MAO&url=http%3A%2F%2Fwww.va.gov%2FOptomtry%2Fdocs%2FVCE_OMS_Eye_Care_Provider_CR_11FEB2015_FINAL.pdf&usg=AFQjCNGtxx6RoZyHd-EhUXi1OiCM0llmZg)
3. <http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwjs69qslM7KAhUE4CYKHZH8BToQFggcMAA&url=http%3A%2F%2Fwww.aao.org%2Fassets%2Fc8938df8-9838-4622-93e5-3232e2b7b9ec%2F635559218865000000%2Fmarch-2014-clinical-update-trauma-pdf&usg=AFQjCNHV9qcWj7dMVk1QNF0FnMQFmSACMg&bvm=bv.113034660,d.eWE>

### Certification

American Board of Ophthalmology Certified 1997, re-certified 2005, re-re-certified 2013

### Medical, other state/government licensure

1996	NY State Medical License (inactive)
1997	PA State Medical License (inactive)
2000	FL State Medical License (retired)
2007	TX State Medical License (active)
2007	MD State Medical License (active)

2006	NPI
2007	Maryland Medical Assistance
2006	UPIN Maryland
2007	Maryland CDS
1997	US DEA
1997	Pennsylvania Medicaid

Boards, other specialty certification - None

#### Clinical (Service) Responsibilities

- 2011-present Direct Patient care: currently 70%
- 2011-present Administrative/Mentoring/Research 30%

#### Clinical Productivity

CY 2018: 1232 patients; 9% from out of state

#### Clinical Draw from outside local/regional area (*reflecting national/international reputation*)

- 2015-present The Vision after Brain Injury clinic routinely draws patients and/or requests for expert medical witness consultation from other states. These patients come specifically for this clinic rather than simply coming to Wilmer as patients of the General Eye Services.

Membership in or examiner for specialty board - None

#### Clinical Program Building / Leadership

- 2015-present Physician provider/10% effort; Vision after Brain Injury Clinic; draws patients and requests for expert medical witness consultation from within and outside JHMI and the region.
- 2018-present Appointed as Medical Director of Clinical Operations for the Office of Johns Hopkins Physicians. A key requirement of this position is to identify and implement processes and technology that will enhance clinical operations and efficiencies.

Clinical Demonstration Activities to external audience, on or off campus - None

Development of national or internationally recognized clinical standard of care documents - None

## EDUCATIONAL ACTIVITIES

### Educational Focus

The Wilmer General Eye Services (GES) Clinic, the only clinic where JHH ophthalmology trainees host their own cadre of patients, was elevated to the level of a division in order to improve all aspects of the resident educational experience. As the first Division Chief, I have strived to create, implement and direct major innovations aimed at redefining the role and format of the GES. The chief benchmarks associated with our education initiatives include increasing resident surgical volumes, appreciation of compliant medical record and billing practices, satisfaction, publication of case reports and opportunities to conduct quality improvement studies. In addition, we are currently conducting research the landscape of resident education to determine best practices for styles of supervision, research participation and resident quality of life. My latest project is the development and conduct of an online course entitled "Name Your Price", for which a donor has provided \$100,000 toward development. This course will guide senior residents and fellows to better understand compensation packages they might be offered upon entering the workforce and will be offered in Academic Year 2019-20.



**Teaching****Classroom instruction**

2011-2015 Instructor, learners were medical students, Transition to the Wards Course, Johns Hopkins Medical School.

**Clinical instruction**

1999-2000 Author and presenter, learners were COA, COT. Ophthalmic Technician Training Program (JCAHPO-approved 24 CE credits). Eye Specialists of Lancaster. North Pointe Office, Lancaster PA.

2001-2011 Clinical Preceptor, learners were MD, DO residents and medical students rotating through ophthalmology, Lancaster General Hospital and Lancaster Community Hospital Family Practice programs. Family Eye Group, Lancaster PA.

2008-2011 Neuro-ophthalmology Preceptor, learners were MD. Krieger Eye Institute Ophthalmology Residency Training Program (Quarry Lakes Office), Baltimore, MD.

2011-2012 Preceptor, learners were undergraduates, Clinical Ophthalmology Tutorial #365 for JHU.

2016-2017 Preceptor, learners were undergraduates, JHU ME.990.179, General Eye Services Clinical Research.

2017-present Preceptor, learners are OT, PT, OD. Clinic Neuro-ophthalmology Observership in Vision after TBI

**CME instruction****JHMI/Regional**

Dec 2102. Presenter, learners were OT, PT, MD. The Ophthalmology of Traumatic Brain Injury. Pediatric Rehabilitation Medicine Dept. of the Kennedy Krieger Institute, Baltimore, MD

Mar 2013 Presenter, learners were OD. Vision Concerns after Brain Injury. Maryland Optometric Association's 6<sup>th</sup> Annual Evidence-Based Care in Optometry Conference. Linthicum, MD

May 2013 Presenter, learners were PhD and graduate students. Vision and TBI: Invited presenter at Kennedy Krieger Institute Neuropsychology Seminars. Baltimore, MD

Jul 2013 Presenter, learners were COA, COT, orthoptists. Vision Problems in the Brain Injury Patient. Family Eye Group Ophthalmic Technicians, Orthoptic and Optometric CME Series, Lancaster, PA

Jul 2013 Presenter, learners were COA, COT, orthoptists. EDS, Chiari and PTC: Visual concerns. Family Eye Group Ophthalmic Technician, Orthoptic and Optometric CME Series. Lancaster, PA

Mar 2014 Presenter, learners were PT, OT, MD. Visual Assessment after Brain Injury. Inservice CME for Physiatry Team. Lancaster Rehabilitation Hospital. Lancaster, PA

Mar 2014 Presenter, learners were OD. Ischemic Optic Neuropathy. Maryland Optometric Association's 7<sup>th</sup> Annual Evidence-Based Care in Optometry Conference. Linthicum, MD

May 2014 Presenter, learners were MD, PhD, RN. Traumatic Brain Injury: Key Visual Concerns. Johns Hopkins Bayview Brain Injury Clinic Faculty Meeting

Oct 2014 Presenter, learners were MD. Traumatic Brain Injury and Vision: What an ophthalmology resident should know. Downstate Medical School Dept. of Ophthalmology. Brooklyn, NY

Dec 2015 Presenter, learners were MD. Wilmer 28<sup>th</sup> Annual Current Concepts Course. Neuro-ophthalmic concerns of concussion. Baltimore, MD

Sep 2016 Presenter, learners were residents, medical students and faculty. Grand Rounds Harbor View Hospital, Baltimore, MD.

Oct 2016 Presenter, learners were OT/Speech & Language Rehab Team. Vision after mild TBI. Inservice for Johns Hopkins PM&R.

- Nov 2016 Presenter, learners were graduate students, post-doctoral fellows and faculty. “Juggling two research lives: Brain Injury and Resident Clinic Optimization. Wilmer F.A.R.M. presentation.
- Dec 2016 Presenter, learners were MD. Wilmer 29<sup>th</sup> Annual Current Concepts Course. Indirect Traumatic Optic Neuropathy. Baltimore, MD
- Jan 2017 Presenter, learners were faculty, fellows and residents. Brain Injury Diagnosis and Rehabilitation Strategies. Grand Rounds at Abington Memorial Hospital, Abington, Pa.
- Apr 2017 Presenter and organizer, learners were faculty, fellows, residents, OT’s, PT’s, optometrists, neuro-psychologists. Concussion: Visuomotor Dysfunction and Intervention – A Team Approach. Sponsored by Penn Medicine. Lancaster, PA.
- May 2017 Presenter, learners were MD, PT, RN. Ophthalmic Concerns in Lyme Disease Patients. First Annual Johns Hopkins Lyme CME Course. Baltimore, MD.
- June 2017 Presenter, learners were residents, fellows, faculty. Traumatic Brain Injury and Vision: When to refer to an eye doctor. Hershey Medical Center Dept. of Neurology Grand Rounds. Hershey, PA.
- August 2017 Presenter, learners were OT/PT. Headaches after TBI. MedStar NRH Rehabilitation Network. Olney, MD.
- Sept 2017 Presenter, learners were MD/OD. Vision after TBI; Diplopia Overview. Wilmer Neuro-ophthalmology for Clinicians: A Practical Approach.
- Nov 2017 Presenter, learners were MD and support staff. Development and Implementation of Standard Work using Lean Methodologies. Ambulatory Management Program Cohort #7.
- Dec 2017 Presenter, learners were MD. Wilmer 29<sup>th</sup> Annual Current Concepts Course. Indirect Traumatic Optic Neuropathy: Update of current research. Baltimore, MD
- May 2018 Presenter, learners were MD, OT, PT. 3 hour workshop for Diagnosis and Online Treatment of Vision Disorders Associated with mild Traumatic Brain Injury. Medstar National Rehab Hospital Center, Washington DC.
- May 2018 Presenter, learners were MD. Update on Indirect Traumatic Optic Neuropathy. James & Jean Culver Vision Discovery Institute of Augusta University, Grand Rounds.
- May 2018 Presenter, learners were MD. Vision after TBI (Monday), Headache after Concussion (Tuesday). Augusta Univ. Dept. of Ophthalmology Resident Lectures.

### **National**

- Nov 2000 Presenter, learners were MD, DO, RN. Lyme and Other Tick-borne Diseases: Focus on Children and Adolescents. A National Conference for Physicians and Allied Health Professionals. Princeton, NJ.
- Aug 2010 Presenter, learners were MD, OT, PT, BROS. Vision after Brain Injury. VA Blind Rehabilitation Services National Convention. Crystal City, VA.
- Nov 2014 Presenter, learners were MD. The Neuro-ophthalmology of Ehlers Danlos Disease. Medical University of South Carolina, Dept. of Neurosurgery. Charleston, SC.
- Sep 2016 Presenter, learners were OD. Headache after Traumatic Brain Injury. Neuro-optometric Rehabilitation Association General Meeting. Reno, NV.
- Sep 2016 Presenter, learners were OD. Indirect Traumatic Optic Neuropathy. Neuro-optometric Rehabilitation Association General Meeting. Reno, NV.
- April 2019 Presenter, learners were OD. Vision rehabilitation after traumatic brain injury. Annual meeting of the College of Optometrists in Vision Development. Kansas City, MO.

### **International**

- May 2016 Invited Keynote Speaker and Presenter, learners were MD, OD, AudD, PT, OT. Lecture 1: Vision after TBI; Lecture 2: Indirect Traumatic Optic Neuropathy. 1<sup>st</sup> Annual Symposium of the College of Optometrists for Vision Development Canada, Ontario. [http://www.aoece.com/?page\\_id=3567](http://www.aoece.com/?page_id=3567)

- Aug 2018 Invited CME Lecture, learners MD and patients. Ophthalmic complications in Ehlers Danlos Syndrome. Ehlers Danlos Society Global Learning Conference – Rarer Types Day. Baltimore, MD. <https://www.ehlers-danlos.com/2018-eds-global-conference/2018-global-learning-conference-schedule/>
- Sept 2018 JHAH Management PCA Administrator Observership (Aramco). Ambulatory Management Program: Standardized Work in the Wilmer General Eye Services Clinic. Baltimore, MD.

### Workshops /seminars

#### JHMI/Regional

- Apr 2013 Presenter, learners were MD, PhD, RN, public. PTC, Chiari, Sticky Blood and EDS: The Ophthalmologic Connection. Quarterly Educational Meeting of the Chiari and Syringomyelia Foundation Greater Metropolitan Washington Area Chapter. Lanham, MD
- Jun 2013 Presenter, learners were MD. Automation and Telemedicine in Ophthalmology. Professor Rounds, Wilmer Eye Institute
- Aug 2013 Presenter, learners were MD, DO, PhD, RN. Pediatric Pain Think Tank on Treating Patients with Ehlers Danlos Syndrome, hosted by the Warren Alpert Medical School of Brown University and The Coalition Against Pediatric Pain (TCAPP.org). Providence, RI
- Feb 2014 Presenter, learners were MD. Ehlers Danlos and Vision. EDS Physician Interest Group of Maryland. Howard County General Hospital, Columbia, MD
- Feb 2018 Presenter, learners were MD. Building a successful academic clinical practice Keynote Speaker. Office of Faculty Development Workshop: Your Academic Clinical Practice Toolkit. Welch Library, JHH.

#### National

- Jan 2014 Presenter, learners were MD, PhD, MPH, OD. Use of the Defense and Veterans Eye Injury Vision Registry (DVEIVR) to Explore the Biomechanics of Traumatic Optic Neuropathy: Presentation to the VIZEST Stakeholder Workgroup. VIZEST is a Dept. of Defense Vision Center of Excellence (DoD-VCE)-sponsored Vision Registry Stakeholder Workgroup. This group is developing a comprehensive vision registry containing eye trauma data that can be used to guide the development of effective eye injury prevention, diagnosis, mitigation, treatment and rehabilitation strategies.

#### International

- May 2016 Contributor, Ehlers Danlos Society International Symposium, Neurology Working Group, New York.

### Mentoring

#### Pre-doctoral Advisees /Mentees

- 2012 Ana Quintanal, undergraduate JHU; see research publication 25

#### Post-doctoral Advisees /Mentees

- 2012 David Poon, MD, retina fellow; see case report 4
- 2013 Chantal Haberman, MPH, administrator Ophthalmology, Northwestern Univ.; see research publication 29
- 2013 Michelle Peng, MD, ophthalmology resident; see research publication 28
- 2014 Joseph Shin, BA, medical student JH SoM; see case report 9
- 2014 Sharif Vakili, BA, medical student JH SoM; see research publication 29, 31
- 2014 Ravi Pandit, MD, ophthalmology resident; see research publication 31

2014	Suzanne Van Landingham, ophthalmology resident; see case report 7
2104	Jithin Yohannan, ophthalmology resident; see case report 8
2015	Brad Barnett, ophthalmology resident; see review article 5
2016	Jessica Chang, oculoplastics fellow; see review article 6
2016	Alvin Liu, Craig See, ophthalmology residents; see case report 10
2016	Aseem Jain, JHU undergraduate; see Grant Awards (Student Initiative Fund)
2016	Michelle Lee, JHU undergraduate course: ME.990.179, General Eye Services Clinical Research.

Thesis committees - None

### Educational Program Building / Leadership

2011	<p>Co-chair, Wilmer Eye Institute Resident Education Task Force</p> <p>The Resident Education Task Force (RETF) was an initiative of the Chairman with the expressed goal of re-creating the Wilmer Resident Education program to optimize resident education. Previous attempts of this nature identified areas where improvements could be made but implementation remained a problem. As co-chair, I scheduled, directed and summarized the meetings, clarified the purpose of the RETF in context of previous efforts, secured commitment from leadership to enact positive changes and formalized the key issues facing the resident training program. The committee was comprised of 5 directorates (GES, GES specialty clinics, didactic education, surgical education and research education) each engaging key stakeholders. Input from faculty, staff, and residents was sought and received. The directorates were charged with creating implementable suggestions with metrics to track success.</p>
2012-14	<p>Faculty Adviser to Technician Pool, appointed by Wilmer Clinical Practice Advisory Committee</p> <p>As faculty adviser to the technician pool, I realized that the quality of technicians varied widely and was correlated with the expectations placed upon them. In 2015, I worked with the technicians to create Standard Work and NIPO sets for technicians in each subspecialty of ophthalmology. The Standard Work was vetted and approved by JHH MCEC; the NIPO sets were published online at the JH Policy Website (<a href="https://hpo.johnshopkins.edu/hopkins/policies/39/11711/appendix_95994.pdf?_af=0.695034523869">https://hpo.johnshopkins.edu/hopkins/policies/39/11711/appendix_95994.pdf?_af=0.695034523869</a>). I created a video introducing Standard Work for the technicians and implemented Standard Work in Winter 2016 in the Wilmer GES. Success was measured through pre- and post-implementation surveys of technicians and providers and a report summarizing this effort was presented to the Wilmer leadership and the Ambulatory Management Program leadership as well. The ultimate goal is to standardize technician tasks throughout Wilmer.</p>
2012-present	<p>Division Education Champion/GES (to implement RETF recommendations).</p> <p>The RETF lead to the creation of Division Education Champions for each division at Wilmer. The recommendations being implemented by this team as part of the PEC include:</p> <ol style="list-style-type: none"> <li>1. Creating a tiered system of providing supervision to the residents</li> <li>2. Increasing technical, infrastructural and administrative support to the residents</li> <li>3. Creating a division education champion with support and authority to oversee achieving the RETF goals specific to each division</li> <li>4. Reconstituting the Resident Education Committee to include the Division Education Champions thereby ensuring regular reporting of the metrics used to track success of the program.</li> <li>5. Organizing the curriculum around the Basic and Clinical Science Series of the American Academy of Ophthalmology</li> <li>6. Measuring success through annual ACGME surveys, results on the OKAP examination and</li> </ol>

- regular, frequent assessments by faculty
7. Creating learning objectives for each sub-specialty rotation.
  8. Creating a single, weekly 3-hour block of protected teaching time for the residents to minimize scheduling conflicts.
  9. Implementing novel teaching methods, including formal, supervised wet-labs, small group sessions and live-patient presentations.
  10. Minimizing difficulties of scheduling resident surgeries and minimizing cancellations by identifying an administrative champion to ensure a smooth process.
  11. Creating a library of audio-visual materials online to introduce and supplement the live teaching opportunities
  12. Assigning a research mentor to each resident
  13. Conduct and publish academic research to demonstrate the effectiveness of the RETF goals, including creating a writing subcommittee of the DEC members. Toward this end, see research publication 29,31.

**Educational Demonstration Activities to external audiences - None**

## **RESEARCH ACTIVITIES**

### **Research Focus**

My chief research focus is optimization of clinic operations. This requires exploring how teaching clinics can maximize educational value while enhancing clinic management. The General Eye Services clinic is my laboratory. We have benchmarked practice metrics, employed patient tracking technology, created standardized screening, validated cost saving measures and introduced niche clinics. Of equal importance, we have approached our work in a scholarly way, turning our everyday efforts into academic products such as poster presentations and peer-reviewed publications. In keeping with the tripartite mission of Johns Hopkins, we have enhanced patient care and ensured that our trainees learn from these efforts.

### **Research Program Building / Leadership**

2014	Team Leader; Biomechanics of Indirect Traumatic Optic Neuropathy Research Group. (see above)
2016	Team Member, Dual Sensory Injury (with neuro-otologists) to explore the Hearing Center of Excellence Vision Registry.

**Research Demonstration Activities** to external audience, on or off campus -None

**Inventions, Patents, Copyrights** - None

**Technology Transfer Activities** - None

## **SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES**

### **System Innovation Focus**

My SI/QI focus is to improve the ability of the Johns Hopkins to offer a top quality experience in education to our residents, in care to our patients, and in work satisfaction to our staff. Toward this end, I am working closely with our Residency Program Director to first develop metrics for which we have some control and then to use our GES clinic as a living laboratory to implement best practices.

**System Innovation and Quality Improvement efforts within JHMI:**

- 2013 Team Leader; GES Flowthrough study using electronic tracking in coordination with the JHH Office of Operations Integration. See Research paper 29 for outcomes; patient satisfaction increased.
- 2014 Team Leader; Comparison of purpose-built electronic patient tracking devices in coordination with JHH Office of Operations Integration. See Research paper 31 for outcomes; tracking devices can be made with much lower cost.
- 2014 Team Leader; Benchmarking Wilmer using metrics commonly serving private practice to optimize resident surgical volumes, confirming that the GES is the primary source of resident surgical volume. See Research paper 32 for full analysis.
- 2015 Team Leader; Comparing the effectiveness and utility of anterior chamber angle evaluation by technicians and physicians prior to dilating the pupil. Project is ongoing.
- 2016 Team Leader; Implementing **Standard Work** to improve technician productivity and satisfaction in the GES. Project is ongoing and **our standard work set has been approved officially as NIPOs by JHH.**
- 2016 Team Leader; Survey to evaluate the perceived value and challenges of a resident-hosted ophthalmology clinic among ophthalmology program directors. See Research paper 34. Project is ongoing with a survey for the residents. This effort created the ophthalmology program directors study group, comprised of more than ½ the program directors in the country.
- 2016 Wilmer-Adult ED Telemedicine Initiative for Resident Education: I donated the software licenses and facilitated the set-up of a slit-lamp camera in the Wilmer ED. At present we are choosing a new camera to study the impact that a slit lamp camera can have on facilitating ophthalmology resident education in the on-call setting.

**System Innovation and Quality Improvement efforts outside of JHMI:**

- 2010 Subject Matter Expert. I was recruited by the Dept. of Defense Vision Center of Excellence (VCE) Program Management Office through General Dynamics Information Technology (Silver Spring, MD and Falls Church, VA). As Subject Matter Expert, it was my duty to create patient education information, develop a Federal Eye Care Assets Survey and create the Vision Assessment Suite of the National Intrepid Center of Excellence (NICOE) at Walter Reed National Military Medical Center in Bethesda, MD.
- 2009-10 Consultant in neuro-ophthalmology. Highmark Blue Cross Blue Shield Clinical Policy Management Committee, Neurosciences Subcommittee. Our subcommittee created guidelines for insurance coverage of neurologic procedures.
- 2015 Subject Matter Expert; Data Abstraction Team developing the Defense and Veterans Eye Injury and Vision Registry database for exploring Neuro-ophthalmic Concerns after TBI in military service personnel. Alexandria, VA.
- 2015 Consultant; Clinical Practice Panel of the Quality Assurance Committee of the College of Optometrists of Ontario concerning strabismus surgery.
- 2015 Consultant; Early detection of sepsis in hospitalized patients applying purpose-built-software to EMR. Phase 1 demonstrated good reliability of software. Phase 2 ongoing.
- 2015 Consultant; Optimization of a new combined EMR system to serve both DoD and VA. Ongoing.
- 2016 Consultant; Exploration of the DoD Hearing Center of Excellence Injury Registry, networking with the neuro-otologists at Johns Hopkins.
- 2016-present North American Neuro-ophthalmologic Society (NANOS) Practice Support/Carrier Relations Committee
- 2017 Welch Allyn Vision Screening Advisory Board (August 10-11, 2017, Skaneateles NY).
- 2018 Welch Allyn Key Opinion Leader for ophthalmic diagnostic products. (August 14-15, 2018, Skaneateles, NY).

2018 Subject Matter Expert; Data Abstraction Team developing the DoD VCE Defense and Veterans Eye Injury and Vision Registry database for exploring Ocular Motility Examination Elements in military service personnel. Alexandria, VA.

### **System Innovation and Quality Improvement Program Building/Leadership:**

2011-present Team leader; rebuilding the GES. Management team to improve the compliance of GES care with ACGME, JCAHPO, billing and medico-legal regulations. Ongoing bimonthly meetings with the Wilmer Vice Chair of Medical Education, Wilmer East Baltimore Administrator and Wilmer Director of Finance to create, implement and measure success in improving GES finances and compliance.

Products and process improvements have included:

- a. 2011: Policy Handbook for the General Eye Services Clinic at Wilmer (posted on Wilmer Intranet and continuously updated as needed). See: <https://www.iwilmer.jhu.edu/intradocs/ges/WilmerGESPoliciesProcedures.pdf>
- b. 2012, updated 2015: Guidelines for Supervising Faculty in the General Eye Services Clinic. These guidelines were developed in collaboration with the ophthalmology residents, the Wilmer Vice-chair for Medical Education, the Wilmer Residency Program Director, and the JHH Faculty Development Program in Teaching Skills.
- c. 2015: Development of STANDARD WORK for technician screening for Wilmer Patients, including changes to improve patient flow through the clinic. This standard work was also formally approved as Nonprovider Initiated Order Sets (NIPO) by the JHH Medical Care Evaluation Committee (MCEC). See: [https://hpo.johnshopkins.edu/hopkins/policies/39/11711/appendix\\_95994.pdf?\\_=0.695034523869](https://hpo.johnshopkins.edu/hopkins/policies/39/11711/appendix_95994.pdf?_=0.695034523869)
- d. 2014: Development and implementation of an electronic system to track surgical cases emanating from GES.
- e. 2013: Developing formal learning objectives for residents in the GES and providing much more stringent supervision of resident care in the clinic and review of documentation in their clinical charts, aligning with the compliance requirements of the RRC/ACGME.
- f. 2011-present: Bringing to the GES advanced diagnostic (e.g., automated perimetry, ocular coherence tomography, advanced retinal imaging software and computers, Lenstar biometry, automated refractometry, portable ophthalmic sonogram, Pentacam) and therapeutic devices (Pyxis machine, YAG laser) to ensure residents and patients have reliable, easy access to vital services without leaving the clinic.
- g. 2012- present: Ensuring that all Wilmer Divisions host a specialty clinic in the GES so our patients and residents would not need to leave the clinic for expert advice and consultations.
- h. 2014: Improving access to our clinic for patients seen in the ED by providing the ED team direct access to our scheduling software.
- i. 2018: Creating a child's play area within our GES Pediatric Specialty clinic with the guidance of JHH Child Life Specialists, to improve patient satisfaction.
- j. 2013-present: Creating and maintaining the Wilmer Same Day Project. Through selective adjustments of staffing, appointment templates and infrastructure throughout Wilmer, our divisions are able to ensure that patients seeking eye care would be guaranteed a visit within 1 business day of their request by contacting our Wilmer Call Center. I spearheaded this effort and broadcast it throughout Johns Hopkins by email, letters and personal contacts. This virtual Urgent Care provides a number of advantages for many Johns Hopkins providers. Aside from relieving the ED of many non-emergent patients seeking eye care, the Same Day Project a venue

for internal medicine and endocrinology departments to meet the Health Disparities Collaborative goal of ensuring that at least 70% of their patients have a dilated eye exam each calendar year. The project has now been adopted Wilmer-wide with the support of the satellite offices and the Comprehensive Eye Service Division. Manuscript describing results in preparation.

## **ORGANIZATIONAL ACTIVITIES**

### **Institutional Administrative Appointments**

2009	Lancaster General Hospital Neurosciences Center Working Group; Neuro-ophthalmology Consultant to develop a Neurosciences Center of Excellence
2011-present	Resident Education Committee/Program Evaluation Committee
2011-present	Wilmer Professionalism Advisory Committee
2011-12	Wilmer Intranet Committee
2011-present	Wilmer-Adult Emergency Department Committee
2011-present	Clinical Practice & Billing Advisory Group
2011-present	Wilmer Long Range Planning Committee
2012-13	Wilmer International Collaborations Committee (Wilmer World Wide)
2014-present	Wilmer Finance Committee

### **Editorial Activities**

#### **Editorial Board appointments**

2014-7	Associate Editor, BMC Ophthalmology
2017-present	Section Editor, Neuro-ophthalmology, BMC Ophthalmology

#### **Journal peer review activities**

2012,2015	Investigative Ophthalmology and Visual Science (Journal for Association for Research in Vision and Ophthalmology)
2013	Lancet Neurology
2014-present	Biomedical Central Ophthalmology
2015-present	Concussion (a journal of Future Medicine, LTD).
2015	Journal of Comparative Effectiveness Research
2016	Annals of Clinical and Translational Neurology
2016-present	Nature (Scientific Reports)
2016	American Journal of Ophthalmology Case Reports
2016	Biomedical Central Pediatrics

#### **Other peer review activities [non medico-legal]**

2014	Peer Reviewer, Army Rapid Innovation Fund (ARIF) Broad Agency Announcement W911NF-13-R-0011. Invited to review proposals for Traumatic Brain Injury (TBI) Assessment and Treatment
2014	Peer Reviewer, Scientific Peer Advisory and Review Services for the American Institute of Biological Sciences (AIBS), under contract to the US Army Medical Research and Materiel Command (USAMRMC).
2014	Peer Reviewer, Scientific Peer Advisory and Review Services for the American Institute of Biological Sciences (AIBS), under contract to the US Army Medical Research and Materiel Command (USAMRMC).



- 2015 Scientific Peer Reviewer, DoD Congressionally Directed Medical Research Programs (CDMRP), Vision Research Programs, March 31<sup>st</sup> – April 2<sup>nd</sup>, Reston, Va.
- 2016 Chairperson, DoD Congressionally Directed Medical Research Programs, Scientific Peer Reviewers for Vision Research Programs, February 17-18<sup>th</sup>, Reston, Va.
- 2017 Scientific Peer Reviewer, DoD CDRMP, Vision Research Programs, February 5-7<sup>th</sup>, Reston, Va.
- 2018 Chairperson, DoD Congressionally Directed Medical Research Programs, Scientific Peer Reviewers for Vision Research Programs, January 11-13<sup>th</sup>, Reston, Va.
- 2018 Scientific Peer Reviewer, Veterans Health Administration Rehabilitation Research and Development Centers – Research Enhancement Awards Program, March 14, Arlington, Va.

#### Advisory Committees, Review Groups/Study Sections

- 2014 Member, Ocular Stakeholder Workgroup (Government-selected Subject Matter Expert) for the Research Initiative for Optimal Vision Care Prototype (OVCP), Task Order Proposal (RTOP) #7, CMID 20850, Defense Health Agency, Department of Defense. The focus of this effort is to create an electronic health record that addresses vision issues after brain injury and can be linked to the Defense/Veterans Eye and Vision Information Registry (DVEIVR) database. The lead on this effort is Col. Donald Gagliano (ret.); this effort was mentioned in the March 2014 edition of EyeNet Magazine (<http://www.nxtbook.com/aao/eyenet/march2014/index.php?startid=33#/30>) and referenced a review article that I published (see review article 3).
- 2013-present Medical Advisory Board, The Coalition for Pediatric Pain (<http://www.tcapp.org/medical-advisory>)

#### Professional Societies

- 1999-present American Academy of Ophthalmology, physician advocate, Congressional Advocate Committee
- 1997-11 Pennsylvania Academy of Ophthalmology, member
- 1997-2000 American Medical Association, member
- 2007-present North American Neuro-Ophthalmology Society, member
- 2013 American Society for Neuro-Rehabilitation, member

Conference Organizer - None

Session Chair - None

Consultants - To avoid redundancy, please see multiple examples above

## RECOGNITION

#### Awards, Honors

- 1982-5 Jonas Salk Research Scholarship (awarded to 8 graduating students in the CUNY system attending medical school)
- 1982 Elected to Sigma Chi Scientific Honor Society
- 1982 Elected to Phi Beta Kappa Honor Society
- 1997 Elected as a Fellow to Alpha Omega Alpha Honor Society
- 2003,04,06 PEDIG Performance Award

#### Invited Talks

JHMI/Regional

- 2015 Standard Work to Improve Technician Screening of Ophthalmology Patients: Results of the JHH Ambulatory Management Program Project of the GES. Presented at the JHH Ambulatory Triad Meeting JHOC 2140.
- 2015 Standard Work to Improve Technician Screening of Ophthalmology Patients: Results of the JHH Ambulatory Management Program Project of the GES. Presented to the JHH Practice Management Committee Meeting SOM Boardroom.

National - please see above CME  
International – please see above CME

## OTHER PROFESSIONAL ACCOMPLISHMENTS

### Posters/Podium Presentations

1. F Scalia, B Freilich, **EL Singman**, J Sommers. 1989. Stability of an Aberrant Synaptic Projection: Effect of Reinnervation of a Normal Target. *Ant. Rec.* 223:101A.
2. F Scalia, **EL Singman**. 1989. The Normal, Direct Ipsilateral Retinotectal Projection is Mirror-symmetric to the Contralateral Projection in *Rana pipiens*. *Neuroscience Abst.* 15:1207.
3. **EL Singman**, F Scalia. 1989. Cells of Dogiel and Ganglion Cell Displacement during Optic Nerve Regeneration. *Neuroscience Abst.* 15:1208.
4. **EL Singman**, N Matta. 2006. Sinus-Related Strabismus. AACO Eastern Regional Orthoptic Meeting. Baltimore.
5. N Matta, **EL Singman**, D Silbert. 2008. Vision Screening in Pennsylvania Dutch Country. How Accurate is the PlusOptix? TCOS/COS Meeting. Whistler, Canada.
6. D Silbert, N Matta, EL Singman. 2008. New Approaches to Vision Screening. School Nurse Symposium. Lancaster, Pennsylvania.
7. N Matta, **EL Singman**, A Christoff, D Silbert. 2008. Field of Single Binocular Vision Using the Matta Map (modification of Lancaster Test) in Lancaster, Pennsylvania USA. XI International Orthoptic Congress, Antwerp, Belgium.
8. D Silbert, N Matta, **EL Singman**, 2008. Vision Screening in Pennsylvania Dutch Country: How Accurate is the plusOptix. XI International Orthoptic Congress, Antwerp, Belgium.
9. N Matta, **EL Singman**, D Silbert. 2008. Using the plusOptix Vision Screener for Detection of Amblyopgenic Factors in Children in the USA. European Strabismology Association, Munich, Germany.
10. D Silbert, N Matta, R Arnold, **EL Singman**. 2009. Evaluation of the PlusOptix S04 Photoscreener and the MTI Photoscreener Compared to a Comprehensive Pediatric Ophthalmology Examination. AAPOS, San Francisco.
11. N Matta, **EL Singman**, D Silbert. 2009. Performance of the PlusOptix S04 Photoscreener for the Detection of Amblyopia Risk Factors in Children Age 3-5. AAPOS, San Francisco.
12. N Matta, R Arnold, **EL Singman**, D Silbert, 2009. What Do We Do when the Film Runs Out? Comparing the PlusOptix to the MTI. World Congress of Pediatric Ophthalmology and Strabismus. Barcelona, Spain.
13. N Matta, R Arnold, **EL Singman**, D Silbert, 2009. Performance of the plusOptix S04 Photoscreener for the Detection of Amblyopia Risk Factors in Children Ages 3-5. World Congress of Pediatric Ophthalmology and Strabismus. Barcelona, Spain.
14. D Silbert N Matta, R Arnold, **EL Singman**, 2009. What Do We Do when the Film Runs Out? Comparing the PlusOptix to the MTI. European Strabismological Association. Belgrade, Serbia.
15. D Silbert, N Matta, **EL Singman**. 2009. Performance of the PlusOptix S04 Photoscreener for the Detection of Amblyopia Risk Factors in Children Age 3-5. European Strabismological Association. Belgrade, Serbia.
16. N Matta, **EL Singman**, D Silbert. 2010. Comparison of the Innova Distance Stereoacuity Test to the Frisby Davis Distance Stereotest. AAO, Chicago.
17. N Matta, **EL Singman**, D Silbert. 2010. Use of the Cogan Lid Twitch to Identify Myasthenia Gravis. XI Meeting of the International Strabismological Association. Istanbul, Turkey.
18. D Silbert, N Matta, **EL Singman**. 2010. Prevalence of Accomodative Insufficiency in Children with Down Syndrome. XI Meeting of the International Strabismological Association. Istanbul, Turkey.
19. D Silbert, N Matta, Cristina Brubaker, **EL Singman**, 2010. Subnormal Accommodation in Amblyopic Children. XI Meeting of the International Strabismological Association. Istanbul, Turkey.

20. N Matta, Gregg Litwin, **EL Singman**, D Silbert. 2010. The Accuracy of the plusOptix for Measuring Pupillary Distance. XI Meeting of the International Strabismological Association. Istanbul, Turkey.
21. N Matta, **EL Singman**, D Silbert. 2010. Are Children Who Present with NLDO More Likely to Have Amblyopia Risk Factors? XI Meeting of the International Strabismological Association. Istanbul, Turkey.
22. D Silbert, N Matta, Robert Arnold, **EL Singman**, 2010. Can a Photoscreener Help Us Remotely Evaluate and Manage Amblyopia? XI Meeting of the International Strabismological Association. Istanbul, Turkey.
23. N Matta, D Silbert, EL Singman, R Arnold. 2010. International Orthoptic Association Pediatric Vision Screening Survey. 2010. XI Meeting of the International Strabismological Association. Istanbul, Turkey.
24. N Matta, EL Singman, D Silbert. 2010. Comparison of the Innova Distance Stereoacuity Test to the Frisby Davis Distance Stereotest. XI Meeting of the International Strabismological Association. Istanbul, Turkey.
25. D Silbert, N Matta, **EL Singman**. 2010. Utilizing Automated Objective Accommodative Measurements as a New Method of Pediatric Vision Screening. AAPOS. Orlando.
26. Cristina Brubaker , D Silbert, N Matta, **EL Singman**, 2010. Association between Accommodative Insufficiency and Amblyopia. AAPOS. Orlando.
27. N Matta, **EL Singman**, D Silbert. 2010. Are Children Who Present with NLDO More Likely to Have Amblyopia Risk Factors? AAPOS. Orlando.
28. N Matta, **EL Singman**, D Silbert. 2010. Prevalence of Accommodative Insufficiency in Children with Down Syndrome. ARVO. Ft. Lauderdale.
29. N Matta, **EL Singman**, D Silbert. A Fresh Look at the Cogan Lid Twitch Test. 2010. Canadian Ophthalmological Society. Quebec City, Canada.
30. N Matta, D Silbert, **EL Singman**, R Arnold 2010. Can a Photoscreener Help Us Remotely Evaluate and Manage Amblyopia? Canadian Ophthalmological Society. Quebec City, Canada.
31. **E Singman**, N Matta and D Silbert 2012. Screening for Visual Acuity: Comparison of Results Obtained with the Flip Chart compared to the plusoptiX A09 Photoscreener Performed by a Lay Screener. Wilmer Research Meeting. Baltimore, MD.
32. N Matta, DI Silbert, **EL Singman** 2012. A comparison of referral criteria used by the plusoptiX photoscreener. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
33. N Matta, DI Silbert, **EL Singman** 2012. Comparing the plusoptiX S04 to the plusoptiX S09. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
34. N Matta, DI Silbert, **EL Singman** 2012. Association between Accommodative Insufficiency and Amblyopia. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
35. N Matta, DI Silbert, **EL Singman** 2012. Utilizing automated objective accommodative measurements as a new method of pediatric vision screening. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
36. N Matta, DI Silbert, **EL Singman** 2012. Comparing the Patti Pics to the Lea Symbols. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
37. N Matta, DI Silbert, **EL Singman** 2012. Evaluation of plusoptiX photoscreening during examinations of children with Autism. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
38. N Matta, DI Silbert, **EL Singman** 2012. Flip chart visual acuity screening compared to the plusoptiX A09 photoscreener performed by a lay screener. XII International Orthoptic Scientific Congress. 26-29 June. Toronto, Ontario.
39. Silbert J, Matta NS, **Singman E**, Silbert DI. 2013. Performance of the plusoptiX photoscreener for the detection

of amblyopia risk factors in children. XXVIII Asia-Pacific Academy of Ophthalmology Congress. 17-20 January. Hyderabad, India.

40. Silbert JF, Matta NS, Tian J, **Singman EL**, Silbert DI. 2013. Normative data on pupil size and anisocoria in children. 39<sup>th</sup> Annual Meeting AAPOS. 3-7 April. Boston, MA.
41. **Singman EL**, Matta NS, Silbert DI. 2013. The plusoptiX Photoscreener: Examining Autistic Children. 24<sup>th</sup> Annual Wilmer Eye Institute Research Meeting. 12 April. Baltimore, MD.
42. Silbert J, Matta NS, Tian J, **Singman E**, Silbert DI. 2013. Association between age, pupil size and anisocoria in children. Curso Internacional Oftalmologica Pediatrica y Estrabismo ACOPE. Simposio Conjuncto ACOPE-AAPOS. 31 May-1 June. Cartagena, Columbia.
43. Matta N, Silbert D, Tian J, **Singman E**. Association between accommodative amplitudes and amblyopia. 36<sup>th</sup> meeting of the European Strabismological Association, Marseille France, September 4-7, 2013.
44. Matta N, Silbert J, Tian J, **Singman E**, Silbert D. Normative data on pupil size and anisocoria in children. 36<sup>th</sup> meeting of the European Strabismological Association, Marseille France, September 4-7, 2013.
45. Vakili S, **Singman E**, Boland MV. 2105. A Comparison of Systems to Measure Patient Flow through Ambulatory Clinics. Johns Hopkins Medical Student Research Day, 6 February. Baltimore, MD.
46. **Singman E**, Srikumaran D, Hackett K, Kaplan B, Jun AS, Preece D, Ramulu P. Benchmarking to support resident education: baseline data for academic outpatient ophthalmology. 13<sup>th</sup> Annual Educating the Educators 2016, sponsored by the Association of University Professors of Ophthalmology program directors council. January 28-30<sup>th</sup>, Ft. Lauderdale, FL.
47. Gad E, Nadgir R, Pillai J, **Singman E**, Yousem D. Computed tomography in the evaluation of acute injuries of the anterior eye segment. American Society of Head and Neck Radiology Annual Meeting, 10 September 2016. Washington, DC.
48. Srikumaran D, **Singman E**, Green L, McDonnell P. Supervision and Autonomy of Ophthalmology Residents in the Outpatient Clinic. Free Paper. 14<sup>th</sup> Annual Educating the Educators 2016, sponsored by the Association of University Professors of Ophthalmology program directors council. January 25, 2017, San Diego, CA.
49. Srikumaran D, D'Souza M, Boland M, **Singman EL**. Integrating a Physician Assistant into an Academic Ophthalmology Consult Service. 14<sup>th</sup> Annual Educating the Educators 2016, sponsored by the Association of University Professors of Ophthalmology program directors council. January 25, 2017, San Diego, CA.
50. Konopacki E, Ling YTT, McCulley T, Nguyen TD, Ramesh KT, **Singman EL**. Development of a head impact device for the study of indirect traumatic optic neuropathy. Summer Biomechanics, Bioengineering and Biotransport Conference. Tucson, Az. June 22, 2017.
51. **Singman E**, Srikumaran D, Green L, McDonnell P. Supervision/Autonomy in Ophthalmology Resident Outpatient Clinics in the US. Masters in Educating Health Professionals Summer Conference. July 30 – August 1, 2017. Baltimore MD.
52. Li Y, **Singman EL**, Daphalapurkar N. Computational Head Model for Biomechanical Simulations of Indirect Traumatic Optic Neuropathy. Military Health System Research Symposium. August 27-30, 2017. Kissimmee, FL.

53. **Singman EL.** Impact of the Same-Day Project at the Wilmer Eye Institute. Architecture of High Value Healthcare 2018 National Conference. September 21-22, 2018. Baltimore, MD. Awarded First Place in the category of "Optimization of Patient Care Setting"

Oral/Podium Presentations [abstracts that were both presented orally and published] – None

Military Service - Please see activities associated with DoD Vision Center of Excellence

#### Community Services

Interviewed for SPORTING NEWS concerning Vision disorders after concussion (October 18, 2016):

<http://www.sportingnews.com/nfl/news/sua-cravens-concussion-vision-problems-glasses-redskins-linebacker-dale-earnhardt-jr-johns-hopkins-expert/s7xn9swy6txlzwdf6a301uky>

#### Humanitarian Activities

As GES Chief, I have welcomed two charity initiatives into our clinic. The first, STOP Glaucoma, provides free exams to patient screened at senior centers and referred for possible visual disorders. These exams include a refraction and visual field as well a full, dilated examination. The second is a clinic for patients of Latin American heritage who might otherwise have nowhere else to turn for their diabetes-related eyecare. These patients receive free eye exams. While these patients do not bring in revenue, they do provide our doctors (faculty and residents) the opportunity to give back to the community as well as valuable learning opportunities.

#### Philanthropic Activities

I have donated approximately \$75,000 to the Wilmer GES by directing my consulting- and medical expert-witness fees to a gift account used to purchase diagnostic and therapeutic equipment to be used by the residents on behalf of patients seen in the GES. Through this effort, we have purchased a LenStar Biometer, Welch Allyn Portable Autorefractor, hand held slit lamp, hand held Perkins tonometer, YAG laser, PentaCam, portable ophthalmic sonography system with computer and mobile cart, licenses and adapters for installing a slit lamp camera in the emergency room, licenses to view retinal images on the Cirrus OCT, portable indirect ophthalmoscope, video entertainment system for the pediatric waiting area, large screen wall mounted monitor to enhance the slit-lamp camera in the clinic as a patient and resident teaching tool, and snacks for the resident break room. In addition, I have sponsored a resident for research at the annual Wilmer Resident's Association Meeting 2016 and 2017. Finally, I have donated \$3000 to Research to Prevent Blindness as part of an incentive to encourage cooperation with my surveys of ophthalmology training programs and have earmarked another \$3000 to the Ehlers Danlos Society for the survey of Ehlers Danlos patients.

#### Other

##### Search Committee Participation

2012	Member, Low Vision Faculty
2012-15	Chair, Optometry Faculty in GES
2012-14	Chair, Ophthalmology Attending in GES
2012	Member, Orthoptist for Pediatric Ophthalmology Division
2012	Member, Associate for Wilmer Development Office
2014-present	Member, Attending for Comprehensive Eye Service

#### Personal Professional Development

2011	Mentoring Skills Development. 4 x 2-hour workshops presented by the Office of the Vice Dean for Faculty to enhance mentoring skills of faculty who advise junior faculty. September-December. Topics included Developing Feedback Skills as a Mentor, Increasing Motivation and Promoting
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Change, Developing Your Coaching and Problem-Solving Skills as a Mentor, and Developing Your Skills to Anticipate and Manage Career Transitions.

- 2012 Diversity Leadership Council: 9<sup>th</sup> Annual Diversity Conference. Topic: Exploring Dimensions of Diversity. 6-hour program, October 15<sup>th</sup>.
- 2012-13 Junior Faculty Leadership Skills Program. 9 x 3-hour sessions presented by the Office for Faculty Development to enhance professional and leadership skills and to promote proactive thinking about future roles as managers and leaders in academic medicine. November –June.
- 2013 Feedback Training for Instructors. 2 x 2-hour workshops to develop, enhance and encourage useful feedback instructors provide for students/residents. Fall.
- 2014 Time Management Seminar (JHH Office of Faculty Development). December.
- 2015 Ambulatory Management Program. Winter-Spring.
- 2015 Direct Observation for Clinical Learning and Assessment January 15 and June 4. 2 x2-hour workshops to develop skills to evaluate learners in the clinic based on set milestones.
- 2015 Communicating with others: Your style and its impact. 3 hour workshop to help recognize communication styles in oneself and others to maximize efficient interactions. September.
- 2016 Economics of Clinical Operations (2<sup>nd</sup> Cohort). 2 day workshop to understand and optimize clinic finances. March.
- 2016 Emotional Intelligence. Ambulatory Management Program 202. ½ day workshop to understand, develop and use emotional intelligence to create a better workplace environment. July.
- 2016 Design Thinking. Ambulatory Management 202. ½ day workshop to understand, develop and employ design thinking to create ideas that can explore the human side of patient-care processes.
- 2016 EPIC Data and Scholarship. 2 hour presentation on managing EPIC data to test research questions, identify research volunteers and recruit patients.
- 2016 Finance & Budgeting. Ambulatory Management 202. ½ day workshop to understand the budget process and guidance in creating a business plan.
- 2017 Negotiating. Ambulatory Management 202. ½ day workshop to understand the science and art behind negotiating toward obtaining a win-win situation.
- 2017 Masters in Education of Health Professions Course: Foundation to Innovation – Adult Learning. ED.610.610(95). 3 credits. Grade A.
- 2017-8 Masters in Education of Health Professions Course: Instructional Strategies ED.880.635(95) 1.5 credits. Grade A.

[Research Participation \(Investigator, examiner\) active JHH IRB](#)

[IRB00044386](#) Biomechanics of Traumatic optic neuropathy. **Principal Investigator.**

[IRB00053942](#) Development of a human skull model via finite element analysis from de-identified CT data to explore the biomechanics of Indirect Traumatic Optic Neuropathy. **Principal Investigator.**

- IRB00053933* Database review of Defense & Veteran's Eye Injury & Vision Registry (DVEIVR): Indirect Traumatic Optic Neuropathy (ITON). **Principal Investigator.**
- IRB00037101* A Double-masked, Placebo-controlled Study with Open-label Period to Evaluate the Efficacy and Safety of MEDI-551 in Adult Subjects with Neuromyelitis Optica and Neuromyelitis Optica Spectrum Disorders. **Study Team Member.**
- IRB00069877* A 3-year, multi-center study to evaluate optical coherence tomography as an outcome measure in patients with multiple sclerosis . **Study Team Member.**
- IRB0069403* Benchmarking the Wilmer General Eye Services Clinic to Support Resident Education: Baseline Data for an Academic Outpatient Ophthalmology Clinic. **Principal Investigator.**
- IRB00069769* A Survey of Ophthalmology Resident Training: Presence- and Perceived Value of a Resident-hosted Outpatient Clinic. **Principal Investigator.**
- [IRB00076837](#) Training Technicians to Evaluate Patients for Potential Angle Closure Glaucoma Prior to Pupil Dilation with Mydriatics: Reliability after Video-Training. **Principal Investigator.**
- IRB00093828* Traumatic ocular injury of the anterior chamber: Missed findings on cross sectional imaging. **Co-investigator.**
- [IRB00104695](#) Safety and validity of reusing iCare Probes after cleaning with alcohol. **Principal Investigator.**

#### Research Participation (Investigator, examiner) other than JHH or PEDIG

- 2008-11 Principal Investigator. Pfizer Study A1481259. Case-Crossover Study of PDE5 Inhibitor Exposure as a Potential "Trigger Factor" for Acute Nonarteritic Ischemic Optic Neuropathy
- 2008-9 Sub Investigator. Kolis Scientific, Inc. LF-001. Randomized Clinical Trial for Treatment of Meibomian Gland Dysfunction and Evaporation Dry Eye\*\*
- 2006-8 Sub Investigator. Inspire Study 031-405. Phase IV. A Multi-Center, Open-Label, Registry of Epinastine HCl Ophthalmic Solution, 0.05% (Elestat\_) in Subjects with History and Current Complaint of Ocular Allergy Symptoms October
- 2006-8 Sub Inv. Alcon C-05-31 A Randomize, Double-Masked and Efficacy Study of FID #109980 Compared to FID #110656 in the Treatment of Dry Eye. Phase IV
- 2009 Sub Inv. Bausch & Lomb 577 A Randomized Multicenter Double-masked Parallel Group, Clinical Safety and Efficacy Evaluation of Loteprednol Etabonate Ophthalmic Gel, 0.5% vs. Vehicle for the Treatment of Inflammation and Pain Following Cataract Surgery
- 2009-2016 Panel Physician. National Disease and Therapeutic Index A long term survey of epidemiologic trends and treatment patterns.

\*\*This study has culminated in the production of a new device, marketed by TearScience as the Lipiflow Thermal Pulsation System. It has received approval by the US FDA and is used to treat meibomian gland dysfunction.