CURRICULUM VITAE

DATE PREPARED: January, 2018

PART I: General Information

Name: SANDRA LORA CREMERS, MD, FACS
Fellow of American College of Surgeons
Diplomate, American Board of Ophthalmology

Office Address: Primary: Visionary Eye Doctors
11300 Rockville Pike, Suite 1202
Rockville, MD 20852, United States
301-896-0890

Johns Hopkins University Medicine, Suburban Hospital
8600 Old Georgetown Road
Bethesda, MD 20814
301-896-3100

Former: Harvard Medical School:
The Massachusetts Eye and Ear Infirmary
Massachusetts General Hospital
Surgical Attending
243 Charles Street
Boston, MA 02114

Phone: 301-896-0890

Email: DrCremers@voeyedr.com; CremersMD@gmail.com

FAX: 301-896-0968

Place of Birth: Cochabamba, Bolivia

Education:

1991	B.A., Columbia University, Columbia College
1992	M.P.H., (Majority of coursework completed), Columbia University, School of Public Health

1996	M.D., Brown University and Dartmouth University Joint Program In Medicine

Postdoctoral Training:

01/96-12/97	Intern in Medicine, Mount Auburn Hospital
01/97-12/00	Clinical fellow of New York Medical College, New York Eye and Ear Infirmary

Licensure and Certification:

2000	BOARD CERTIFIED IN OPHTHALMOLOGY;
	RE-CERTIFICATION COMPLETED OCTOBER 2011
2000	VISX® Registered Surgeon
2000	Massachusetts Registered Physician
2003	Fellow, American College of Surgeons
2005	RESTOR® Certified Surgeon
2006	INTRALASE ® Certified Surgeon
2006	TECNIS and REZOOM® Certified Surgeon
2007	CRYSTALENS and TRULIGN® Certified Surgeon
2007	AcrySof IQ TORIC LENS® Certified Surgeon
2009	Florida Registered Physician
2011	Maryland Registered Physician
2011	LenSx® Femtosecond Laser Certified Surgeon
2014	WaveTec® Vision ORA System® Certified Surgeon
2015	CATALYS® Precision Laser System
2015	iStent® Certified Surgeon; certified to perform Micro Invasive Glaucoma Surgery (**MIGS**) and Goniotomy Surgery for Glaucoma
2016	Symfony® and Symfony® Toric Certified Surgeon
2018	Cypass® Certified Surgeon

Academic Appointments:

1996-1997	Clinical Fellow in Medicine, Medicine, Mount Auburn Hospital, Cambridge, MA
1997-2000	Clinical Fellow in Surgery, New York Medical College, Valhalla, NY, New York, NY
2000-2009	Instructor, Department of Ophthalmology, Massachusetts Eye and Ear

	Infirmary, Boston, MA
2000-2009	Surgical Clinical Instructor, Harvard Medical School, Boston, MA
2013-	Johns Hopkins University, Johns Hopkins Medicine, Suburban Hospital, Bethesda, MD

Hospital or Affiliated Institution Appointments:

01/00-11/08	Attending Surgeon, Massachusetts Eye and Ear Infirmary, Boston, MA
02/13-	Visionary Ophthalmology, LLC, Rockville, MD 20852
02/13-	Palisades Eye Surgery Center, Bethesda, MD 20814
02/13-	Suburban Hospital, Johns Hopkins University Medical Center
06/13-	Affiliation with NeuroScientific Insights, 3202 Tower Oaks Blvd., Suite 300, Rockville, MD 20852.
3/18-	Advanced Regenerative Treatment Center of the Greater Washington DC Area, Maryland, Virginia

Hospital and Health Care Organization Clinical Service Responsibilities:

2005-2009	Attending Surgeon in Department of Ophthalmology, Massachusetts Eye and Ear Infirmary

Major Administrative Responsibilities:

2003-2009	Academic Advisor to Residents in Ophthalmology, Massachusetts Eye and Ear Infirmary

Major Committee Assignments:

HMS / HSDM

2007-2008	Bylaw Committee, Massachusetts Eye and Ear Infirmary

Affiliated Inst

2000-2008	Respiratory Care Committee, Massachusetts Eye and Ear Infirmary

Professional Societies:

1992-2010	St. Luke's Physician's Guild, Member
1992-2001	American Medical Association, Member
1997-2010	American Society of Cataract and Refractive Surgery, Member
1997-	American Academy of Ophthalmology, Member

1997-2000	New York State Ophthalmological Society, Member
1998-2009	International Society of Refractive Surgery, Member
1998-2010	Association for Research and Vision Organization, Member
1998-	American College of Surgeons, Member
	Fellow, 2003-
1999-2000	Medial Society of the State of New York, Member
2004-2009	New England Ophthalmological Society (NEOS), Member

Community Service Related to Professional Work:

2001	Participant, Governor's Conference on Aging
2005-2009	Lecturer, Massachusetts Homeschooling student groups
2017	Bolivian Medical and Surgical Mission Trip to Cochabamba, Bolivia, Hospital Viedma Feb-March 2017

Editorial Boards:

2000-	Reviewer, Journal of Ophthalmology
2006-	Reviewer, Archives of Ophthalmology
2007-	Reviewer, Ophthalmic Surgery, Lasers and Imaging
2010-	Reviewer, Journal of Cataract and Refractive Surgery

Awards and Honors:

1992	Dean's list Five of Six semesters, Columbia U., Columbia Col.
1996	Janet M. Glasgow Memorial Achievement Citation, American Medical Women's Association
2004-2005	Mass Lions Research Grant, Lions Club of Massachusetts
2004	50th Anniversary Scholars Grant, Harvard Medical School
2005-2006	Mass Lions Research Grant, Lions Club of Massachusetts
2006-2007	National Rosacea Society Grant, Other
2006-2007	CRICO/RMF and Healthcare Research Safety Institute,, Harvard Medical School
2016	HealthTap Award for Top Doctor in Maryland, Top Doctor Competition, Winter 2016

Part II: Research, Teaching, and Clinical Contributions

A. Narrative report of Research, Teaching, and Clinical Contributions

Since my work at Harvard Medical School, I have been in private practice and part of Johns Hopkins University Medicine with Suburban Hospital. I continue to see thousands of patients to help them with their vision loss from cataract, glaucoma, pterygium, and retinal disease as well as help relieve discomfort and pain from conditions, such as ocular surface disease (from various

causes including dry eye disease, post Lasik/PRK, previous isotretinoin use, Sjögren's syndrome and other autoimmune disease, Stevens-Johnson syndrome, Graft Versus Host Disease). Since my research on rosacea at Harvard I have had a special focus on Dry Eye Disease, seeing many patients with dry eyes, meibomian gland dysfunction (MGD), and chronic pain from ocular surface disease and MGD. I have thus expanded my area of research to include research into better treatment options for severe dry eye disease and started looking for a cure for dry eyes with autologous stem cell implantation which is scheduled to start March 2018 with an IRB approved protocol.

Prior to the use of stem cells, I noted that a patient's platelet rich plasma also contained many growth factors and some concentration of a patient's own stem cells. Two of my patients with severe Sjögrens syndrome were treated with injection of platelet rich plasma into the meibomian glands. Surprisingly the atrophied meibomian glands noted prior to the procedure on meibography, appeared to "grow back" clearly on the post-procedure meibography.

Given the nature of autoimmune diseases, it is not clear how long this positive effect will last and whether stem cell injections into the meibomian glands present a possible cure for dry eyes or a better treatment option than what is currently available to patients.

Thus I have embarked on the study of autologous stem cell injections into the meibomian glands, lacrimal glands, and limbal stem cells of patients with or without added autologous platelet rich plasma. Our hypothesis is that stem cell injections will regenerate the patient's cells involved in producing a stable, complete tear, which have been damaged by medications, autoimmune disease, aging, chemotherapy/radiation, chronic inflammation, and/or excessive screen time.

Additionally, I have performed hundreds of pterygium surgeries and have a very low recurrence rate and excellent cosmetic outcomes. I have published in this area and continue to do research to improve our cosmetic results with pterygium surgery. My research in meibomian gland disease has revealed that patients with a pterygium show greater meibomian gland loss in the corresponding meibomian glands. We plan to publish in this area to encourage patients to have the pterygium removed sooner to prevent chronic dry eye as any new growth on the eye is a source of inflammation for the crucial meibomian glands.

The narrative below represents the activities during my time at Harvard Medical School's Department of Ophthalmology at the Massachusetts Eye and Ear Infirmary.

I. Research:

My research interests stem from a desire to improve the lives of my patients. One area of my research involves the use of surgical outcome tools to improve surgical results, improve residents' ability to learn and perform surgery, and to improve our understanding, as well as our patients' understanding, of preoperative surgical risk and how this relates to outcomes. The second area involves evaluating the role of angiogenesis in ocular rosacea, a chronic, often debilitating condition I see in many of my patients.

A. Harvard Medical School Residents in Ophthalmology Cataract-Surgery-Outcomes Study (HMS ROCS):

The first area of research I have been interested in since my arrival to the Massachusetts Eye and Ear Infirmary is in the area of epidemiological research of surgical teaching. When I was a resident, it was clear that there was no uniform method of assessing or improving surgical skills for residents. Upon my arrival to Harvard Medical School, I wanted to create a more object tool to evaluate surgical skill and surgical bedside manners, and then use the data obtained to improve surgical teaching. In order to address this issue, I developed a protocol entitled the Harvard Medical School Residents in Ophthalmology Cataract Surgery outcomes study (HMS ROCS).

This protocol has three key goals. The first goal is to develop new surgical assessment tools to evaluate residents' surgical competency. The second goal is to use these tools to assess the surgical outcomes of the residents on the service. The third goal is to improve the way we teach surgical skills to our residents and to improve our patients' surgical outcomes.

Thus far we have achieved these goals in the following ways. First, my team developed two new surgical assessment tools called OASIS (Objective Assessment of Skills in Intraocular Surgery) and Global Rating Assessment of Skills in Intraocular Surgery (GRASIS) (published, Journal of Ophthalmology 2005). They have been nationally hailed as models for assessing residents' surgical competency. Additionally, we developed a similar assessment tool for oculoplastic surgery presented at the American Academy of Ophthalmology meeting in October 2005 with Dr. Peter Rubin. We have also developed a specific tool for penetrating keratoplasty (OASIS-PK), for LASIK surgery, and for strabismus surgery (GRASS: Global Rating Assessment of Strabismus Surgery) presented at the 2006 annual AAO meeting.

Second, we have now created the largest surgical outcomes database of ophthalmology residents in the world. With over 3000 cases thus far, we have been able to evaluate patients' short term and long term surgical outcomes. Third, we have been able to show the positive effect of this outcomes research on our overall surgical complication rates.

In 2004 at the national meeting of the Association of Cataract and Refractive Surgeons (ASCRS), we reported a statistically significant lower vitreous loss rate in resident-cases staffed by full time surgical attendings. This finding supported a decision in our own department to utilize only full time attending staff as surgical preceptors. Since this change, we found that our overall vitreous loss rate decreased by 31%. For our program, this represented a direct application of data analysis from this objective database. This presentation is also the first report demonstrating the use of an outcomes tool to improve residents' surgical outcomes. This project will likely be a strong model for other surgical training programs around the world for improving residency training and patients' surgical outcomes.

OASIS is now capturing attending surgeons' surgical cases as well. As a consequence, we then began comparing surgical outcomes between residents and attendings. In order to do compare results fairly, we developed a surgical risk profile called RACS-Risk Assessment in Cataract Surgery which represents the first valid risk profile in cataract surgery (AAO meeting, Chicago, Il, Nov 2006). Now we are in the process of combining OASIS data with preoperative RACS scores to be able to compare surgical skill and outcomes equitably. RACS will be used to identify which cases a beginning resident can perform versus an experienced resident or can only

be performed by at attending surgeon. Additionally, RACS can be used to provide pre-operative surgical counseling to cataract patients. A new project we have started attempts to prove the following hypothesis: surgical patients who are given their RACS score report higher patient satisfaction scores on a tool called PAST (Patient Assessment of Surgical Treatment- developed by our team), than those who are not instructed about their RACS score. If our hypothesis is true, it could mean a major change in how we consent surgical patients as well as identifying surgical risks and decreasing malpractice risks for entire surgical practices and residency programs.

In 2009, OASIS became a web-based system in effort to centralize reporting among various hospitals within the Harvard system. The long term goal of OASIS is to centralize reporting of all cataract surgery by ophthalmologist in the US and throughout the world.

There are numerous abstracts that have come from the OASIS database. Some of the highlights of OASIS projects are listed below:
1. Evaluating the incidence of Intraoperative Floppy Iris Syndrome (IFIS) in patients taking commonly prescribed alpha-1-receptor blockers for benign prostatic hypertrophy or urinary retention. These medications have been proven to increase surgical complication rates in cataract surgery if IFIS is not recognized early. We continue to evaluate our data in OASIS to see the effect of these medications on surgical outcomes. Initial findings presented at ARVO 2005.
2. Risk of Cystoid Macular Edema (CME) after cataract surgery. We recently submitted our paper entitled, "Clinical Pseudophakic Cystoid Macular Edema: Risk factors for Development and Duration after treatment," to the Journal of Ophthalmology (September 2006). This is the first paper to our knowledge to show a statistically significant increase in CME risk in patients with a history of retinal vein occlusion, independent of other surgical factors. We also demonstrated the following: that treatment with NSAIDs alone or NSAIDs plus steroids was associated with a faster resolution of CME compared to steroids alone or no treatment; patients with known risk factors for CME (i.e., DM, intraoperative complications), when treated with postoperative prophylactic NSAIDs for at least 1-3 months, had no higher incidence of developing CME than non-high risk group.
3. Increased Intraocular Pressure on the First Postoperative Day Following Resident-Performed Cataract Surgery. Abstract presented ARVO Annual Meeting 2005. Paper submitted to Acta Ophthalmologica, June 2010 with co-authors Jae Yong Kim MD, PhD, Stacey C. Brauner, MD, Zandra Ferrufino-Ponce MD, Rasha Ali, MD, and Bonnie An Henderson, MD.

B. The Role of Angiogenesis in Rosacea and Ocular Rosacea
The area of research that has captivated my mind and heart is investigating the role of angiogenesis in rosacea and ocular rosacea. Currently no one has fully described this connection pathologically or clinically. Prior to his death, I had the honor of working with Dr. Judah Folkman in an effort to prove the central role of angiogenesis in the pathophysiology of ocular rosacea. Our hypothesis presents the possible connection between severe ocular rosacea and a patient's internal angiogenic risk. I hypothesized that patients with severe ocular rosacea have a higher circulating angiogenic factor and risk profile that increases the risk of other conditions that rely on angiogenesis, such as wet macular degeneration, proliferative diabetic retinopathy (if they have diabetes), and certain internal cancers. Additionally I postulated that severe ocular

rosacea is an external sign of high internal risk for many angiogenic-based diseases. Dr. Folkman presented a possible flip side to this hypothesis: namely the possibility that severe ocular rosacea is a sign of protection from other conditions that rely on angiogenesis, such as many cancers, since angiogenic factors are being "used up" in the facial area. We proposed a long term study to evaluate which hypothesis was correct.

This study has three phases. In the first phase, we developed a valid severity score criteria for ocular rosacea. Currently there are no published valid tools or systems for diagnosing ocular rosacea. Through the collaboration among 3 academic institutions (MEEI, NYEE, and Bascom Palmer), our tool called SCOR (Severity Criteria for Ocular Rosacea) is a new, innovative system for rating ocular rosacea severity. We initially presented SCOR at the American Academy of Ophthalmology Meeting in Nov. 2006. It is currently in review for publication.

In the second phase of the study, we evaluated eyelid margin and conjunctival biopsies of patients with severe ocular rosacea for levels of angiogenesis markers compared to controls with the help of Dr. Folkman and Dr. Martin Mihm of MGH. Additionally, we are evaluated Vascular Endothelial Growth Factor (VEGF) levels in tear samples of our severe ocular rosacea patients. Our initial results demonstrated an increased level of VEGF and CD31 in patients with severe ocular rosacea. We hope to replicate these results and proceed to measure plasma endostatin, circulating endothelial cells, and circulating progenitor cells in patient with severe ocular rosacea for comparison to controls. Such research will be the first pathologic studies to fully investigate the role of angiogenesis in ocular rosacea.

The third phase of the study involves the prospective evaluation of patients with severe ocular rosacea. This phase involves collaboration with departments of dermatology, oncology, epidemiology, and biostatistics. We will report the incidence of cancer, wet macular degeneration, and proliferative diabetic retinopathy in this cohort of patients compared with controls. This is novel research for a condition which affects over 20 million Americans at a cost of over 2 billion per year. In the end, I hope to develop a better understanding of the pathophysiology of ocular rosacea and thus develop a cure.

II. Teaching:
In the teaching sphere, I taught residents and fellows the clinical and surgical aspects of ophthalmology in the office and in the operative room from 2000-2009 at Harvard Medical School. Most of our teaching sessions involve direct patient care and after hours chart reviews. The creation of the surgical evaluation tools OASIS (Objective Assessment of Skills in Intraocular Surgery) and GRASIS (Global Rating Assessment of Skills in Intraocular Surgery) helped my ability to teach residents key surgical skills and attributes they need to have for their patients. Before and after each surgical case, I review the OASIS form with the resident and provide formative feedback and constructive criticism. At the end of the surgical day, I review GRASIS with the resident to provide summative feedback. At the end of the rotation, we can provide more objective feedback to the resident in terms of surgical outcomes and GRASIS scores or trends.

I also lecture to the residents yearly on surgical techniques for cataract surgery at the Massachusetts Eye and Ear Infirmary and was a participant in the 1st Annual Harvard Medical School Intensive Cataract Course in 2005. Additionally, I participated in the intensive Lancaster Course Series in Colby College, Colby, Maine for ophthalmology residents from around the country. Finally, I have also been actively involved in teaching the Harvard Medical School students ophthalmology as part of an organized series of classes as well as during their rotation with me on our service. I have also hosted numerous international medical students and foreign ophthalmologists since 2000. Most recently, I helped establish a yearly fellowship at the Comprehensive Ophthalmology Service, and helped launch the careers of three physicians planning to go into ophthalmology (two) and oncology (one).

A final educational effort I continue to pursue is as a teacher to my patients. I have made a great effort to improve the explanation of their disease process and treatments for their diseases by creating informative literature and brochures. Additionally I have developed a more uniform method on the service of helping patients explain their symptoms, medical history, and concerns and thus help them communicate more effectively with their surgeon. I also give talks to patient groups about the function of the eye and its disease and have been involved in outside activities aimed at educating patients about preventable eye disease, such as the Governor's Annual Conference on Aging. By empowering patients with information, I hope to help them decrease their risk for future eye diseases.

III. Clinical:
In the clinical realm, I am an eye surgeon who specializes in cataract and anterior segment surgery as well as refractive and glaucoma laser surgery with a particular research interest in Dry Eye Disease. I perform many laser, extraocular, and intraocular surgeries weekly, including state-of-the art cataract surgery, amniotic membrane transplantation, pterygium excisions, secondary sutured intraocular lens implantations, refractive intraocular lens implantations, refractive laser surgery and laser surgeries for glaucoma.

As a surgeon, I stay on the cutting edge of new state-of-the-art techniques and instruments, by continuously incorporating new skills into my clinical practice. I have incorporated the latest technology in my care of patients with cataracts and glaucoma. I am certified to use the femtosecond laser for cataract surgery and LASIK surgeries, as well as the iStent and Cypass for glaucoma surgery. By keeping on top of the latest innovations in ophthalmic surgery, I strive to provide all my patients the best care possible.

As patient education represents a large part of my daily activities in my clinical practice, I am a patient advocate and strongly believe patients should understand as much as possible about their eye condition. In addition to creating patient educational material as discussed above at Harvard, I believe my work in identifying surgical risks via the tool RACS, can help patients better understand their eye condition and surgical prognosis.

As of 2013, I have been working in private practice and continuing my research in outcomes and interest in dry eye treatments, particularly looking for a cure for dry eyes with autologous stem cell injections into meibomian glands, lacrimal glands, and limbal stem cells regions.

Specifically, in my dry eye research initiative, I have developed a protocol to begin injection of autologous stem cells for patients with severe dry eye.

In the area of cataract surgery, we are looking at the effects of femtosecond laser cataract surgery on visual recovery and long term endothelial cell damage. I have initiated an outcomes database of all the cataract surgeries and pterygium surgeries in our practice.

In the area of pterygium excisions, we are looking at key factors involved in recurrence and other complications, such as ptosis, dellen, and infection.

B. Narrative report of Research, Teaching, and Clinical Contributions at Visionary Eye Doctors

This narrative represents the activities during my time at Visionary Eye Doctors in Washington DC.

I. Research: My at Visionary Eye Doctors has focused on outcomes research in dry eye treatments, pterygium surgery and cataract surgery. We have published two papers in the area of pterygium surgery and have presented multiple papers at international conferences. I have a paper begin submitted in early 2018 to the New England Journal of Medicine on our finding of Dry Eyes in Children with excessive screen use.

II. With regards to my pterygium research: my key goal is to decrease recurrence rates in pterygium surgery and provide the best cosmetic outcomes for our patients.

III. In the area of cataract surgery, our outcomes research has been centered on how to best decrease total phaco energy used during cataract surgery to help protect inner cell structures of the eye (the endothelial cells).

IV. Teaching: I have mentored our research fellow Jenny Ha and Carlos Pigotti since we started a research fellowship at Visionary Eye Doctors. Together we have enlisted the help of multiple residents and medical students at Georgetown Medical School and Hospital.

V. Clinical: hundreds of patients a month with a special interest in patients needing cataract surgery, pterygium surgery, and dry eye patients.

B. Funding Information

2004-2008	P.I., Foundation, LIONS-Grant # 75443, Surgical Outcomes after Cataract Surgery
2004-2006	P.I., Harvard Medical School Scholar's Grant, HMS-Grant # 75429, Harvard Medical School Residents in Ophthalmology Cataract Surgery Outcomes Study
2005-2008	P.I., Foundation, LIONS-Grant #75477, Evaluating the Role of Angiogenesis in Rosacea and Ocular Rosacea to Develop New Treatments and Identify Angiogenic Risk
2006-2007	P.I., Foundation, National Rosacea Society, Grant #75504, Evaluating the Role of Angiogenesis in Rosacea and Ocular Rosacea to Develop New Treatments and Identify Angiogenic Risk

2006-2008	P.I., Company, CRICO/RMF, Grant #75522 , Use of a Valid Risk-Assessment Tool and Objective Outcomes Database to Improve Surgical Outcomes and Patient-Surgeon Communications
2017	Visionary Foundation, Funds for Bolivian Medical and Surgical Mission Trip
2018	P.I., Platts-Martin Foundation Grant to start Autologous Stem Cell Research

C. Report of Other (Non-Funded) Activities

Co-P.I.	Harvard Medical School Residents in Ophthalmology Cataract Surgery Outcomes Study
P.I.	The Effect of Phacoemulsification Time and Other Surgical Factors on Corneal Endothelial Cell Counts and Postoperative Vision
P.I.	The Use of the Heidelberg Retina Tomograph II to Diagnose Cystoid Macular Edema in Normal and Diabetic Patients after Cataract Surgery.

D. Report of Teaching

1. Local contributions

a. Medical School Courses

2000-2009	Instructor in Ophthalmology, Harvard Medical School: Preceptor of 20 Medical Students; Contact Time: 20 hours/month for 1 month; Prep Time: 3 hours/month for 1 month
2005-2008	OP502M.8 Advanced Ophthalmology: Preceptor of 12 Medical Students; Contact time: 25 hours/week for 1 week; Prep Time: 2 hours/ month for 1 month.

c. Local

Invited Presentations

Conference

2001	Surgical Experience with Intraocular Implantation of Memory Lens, American Society of Cataract and Refractive Surgery Conference

Lecture

2000 LASIK Experience of Residents at the New York Eye and Ear Infirmary, New York Eye and Ear Infirmary

Lecturer: 44 participants, 1 hour contact time per year,
10 hours prep time per year

2000 Viscocanulostomy Surgery for Congenital Glaucoma, New York Eye and Ear Infirmary

Lecturer: 44 participants, 1 hour contact time per year,
10 hours prep time per year

2002 Topical Anesthesia and Advanced Phacoemulsification Techniques, Massachusetts Eye and Ear Infirmary

Lecturer: 31 participants, 1 hour contact time per year,
10 hours prep time per year

2004 Intraocular lenses/ Ophthalmology lecture series, Massachusetts Eye and Ear Infirmary

Lecturer: 34 participants, 1 hour contact time per year,
7 hours prep time per year

2004 Advanced Phacoemulsification Techniques, Massachusetts Eye and Ear Infirmary
Attending: 30 participants, 1 hour contact time per year,
1 hours prep time per year

Lecturer: 30 participants, 1 hour contact time per year,
7 hours prep time per year

2005 Introduction to Phacoemulsification, Massachusetts Eye and Ear Infirmary

Lecturer: 34 participants, 1 hour contact time per year,
7 hours prep time per year

2013 A Hidden Danger in Ocular Rosacea, Visionary Ophthalmology,

Attending: 50 participants, 1 hour contact time, 7 hours prep time

2014 The Bionic Patient: Intraocular Lenses & Multifocal Options, Visionary Ophthalmology,

Attending: 50 participants, 1 hour contact time, 7 hours prep time

2015 Innovations in Eye Surgery & General Ophthalmological Care, Visionary Ophthalmology,

Attending: 50 participants, 1 hour contact time, 7 hours prep time

2016 Eye Surgery Innovations, Visionary Eye Doctors,

Attending: 50 participants, 1 hour contact time, 7 hours prep time

Innovations in Eye Surgery & General Ophthalmological Care, Visionary Ophthalmology,

Attending: 50 participants, 1 hour contact time, 7 hours prep time

Other

2006, 2011 International Federation for Family Development Seminar, Other

Co-Coordinator: 50 participants, 30 hours contact time per year, 5 hours prep time

Seminar

2003 Anatomy and Physiology of the Eye, Massachusetts Eye and Ear Infirmary

Lecturer: 15 participants, 1 hour contact time per year,
5 hours prep time per year

2005 Harvard Medical School Intensive Cataract Course, Lecturer and Wetlab preceptor, Massachusetts Eye and Ear Infirmary
Attending: 114 participants, 2 hours contact time per year,
1 hours prep time per year

Lecturer: 114 participants, 1 hour contact time per year,
1 hours prep time per year

d. Continuing Medical Education Courses

2004	Future Intraocular Lens Materials/New England Ophthalmology Society Meeting Conference Leader: 170 participants, 1 hour contact time per year, 3 hours prep time per year Lecturer: 170 participants, 1 hour contact time per year, 12 hours prep time per year
2013	CE Credit: Ocular Rosacea: A Hidden Concern Conference Speaker: 120 participants, 1 hour contact time

e. Advisory and Supervisory Responsibilities in Clinical or Laboratory Setting

2003-2010	7 Residents for 200 hrs/year, Surgical Preceptor in operating room, Harvard Medical School
2003-2008	2 Residents for 15 hrs/year, Mentor, Harvard Medical School
2003-2008	1 Fellows for 2000 hrs/year, Supervise research activities & career counseling, Harvard Medical School
2012	1 Fellow, 2 Ophthalmology Residents, 2 Medical Students from Georgetown Medical School and University Hospital
2013	1 Fellow, 2 Ophthalmology Residents, 2 Medical Students from Georgetown Medical School and University Hospital
2014	1 Fellow, 2 Ophthalmology Residents, 2 Medical Students from Georgetown Medical School and University Hospital
2015	1 Fellow, 2 Ophthalmology Residents, 2 Medical Students from Georgetown Medical School and University Hospital
2016	1 Fellow, 2 Ophthalmology Residents, 2 Medical Students from Georgetown Medical School and University Hospital
	1 Fellow, 1 Ophthalmology Residents from Georgetown Medical School and

2017 University Hospital; Registered Nurse obtaining MPH.

f. Leadership Roles

2000-2008 Full Time Surgical Preceptor in the Department of Ophthalmology, Massachusetts Eye and Ear Infirmary
Responsibility: Teach ophthalmology and ophthalmic surgery to residents and rotating medical students.

Special Accomplishments: Established an outcomes tool to assess surgical outcomes objectively, and developed a global evaluation tool to assess residents' surgical skills.

2013- Member, Visionary Ophthalmology Ethics Committee

2015- Board Member, Guangcheng Chen Foundation, NY, NY

Resident in Ophthalmology, Ivey Eye Institute, Department of Ophthalmology, University of Western Ontario

g. Advisees/Trainees

Training Duration	*Name*	*Current Position*
2002-2003	Tzouvelekis Argyrios, MD	Assistant Professor, Department of Pulmonology, Medical School, Democritus University of Thrace, Alexandroupolis 68100, Greece
2002-2003	Nabeel Farooqui, MD	Internist, Memphis, Tennessee
2002-2003	Elizabeth Yeu, MD	Assistant Professor, Baylor College of Medicine, Houston,

		Texas
2002-2004	Isabel Balderas, MD.	Ophthalmologist, New England Medical Center.
2002-2004	Marcus Ko, MD	Fellow, Bascom Palmer, Oculoplastics
2003-2004	Joseph Ciolino, MD	Assistant Professor, Ophthalmology, Harvard Medical School, Massachusetts Eye and Ear Infirmary
2003	Renee Hsia, MD	Assistant Clinical Professor in the Department of Emergency Medicine at UCSF
2004-2006	Bharat Samy, MD	Cardiologist, Brigham and Women's Hospital
2004-2005	Zandra Ferrufino-Ponce, MD	Fellow, Hematology Oncology, University of Washington
2004-2007	Jae Y. Kim, MD, phD	Associate Professor, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Republic of Korea.
2005	Nicholas Butler, MD	Associate Professor, Johns Hopkins University Ophthalmology
2005	Michael Weiss, MD	Assistant Professor, Columbia Presbyterian Medical Center
2005-2010	Andrea Kossler, MD	Assistant Professor and Head of Oculoplastics Department, Stanford University

2005	Renu Chundru, MD	Assistant Professor, Ophthalmology Yale University
2005	David Camoriano, MD	Anterior Segment Surgeon, The Winnipeg Clinic
2006-2007	Neetu Brar, MD	Physician at Paradise Valley Hospital
2006	Apurva Patel, MD	Resident in Ophthalmology, University of Pennsylvania
2006	Fazia Ahmad Mir, MD	Internist, St. Louis, MO
2006	Kevin Warrian, MD	Fellow, Wills Eye Institute
2007-2009	Sarosh Janjua, MD	Internist, Boston University
2007	Mai Pham, MD	Internist, Boston University
2007-2009	Sanya Diaz, MD	Hospitalist, Florida Atlantic University
2014-2017	Jenny Ha, BS	Medical School, Ohio State Medical School
2014-2016	Michael Korchak, MD	Cornea Fellow, Cornell Medical University, Department of Ophthalmology
2017-2018	Carlos Pigotti, BS	Research Assistant, Visionary Eye Doctors

2. Regional, national, or international contributions

a. Invited Presentations

Regional

2004 Future Intraocular Lens materials, The New England Ophthalmology Society

[Invited Lecture]

2013 Rosacea, a Hidden Concern; lecture as part of Visionary Ophthalmology Continuing Medical Education Series

National

2001 Surgical Experience with Intraocular Implantation of Memory Lens, American Society of Cataract and Refractive Surgery *[Other]*

2005 Educating the Educators at the Association of University Professors in Ophthalmology: Presentation of Surgical Outcomes Analysis, American Academy of Ophthalmology*[Invited Lecture]*

International

2007 International Federation for Family Development Speaker and Panelist: spoke about balance between work and family for working mothers, Rome, Italy, March 2007 , International Federation for Family Development *[Invited Lecture]*

2012 United Nations, NGO, The Institute for Family Policy (IPF), during the 56 edition of the Commission on the Status of Women, March 2012 *[Invited Lecture]*

2018 The Safety of Autologous Platelet Rich Plasma Injection into Meibomian Glands for Patients with Severe Dry Eyes. ASCRS Annual Meeting. Washington DC. 2018

E. Report of Clinical Activities

2000- Ophthalmology, Cataract & Refractive Surgery Massachusetts Eye and Ear Infirmary
Clinical Activity Description: The Harvard Medical School Residents in Ophthalmology Cataract-Outcomes Study is a way for me to incorporate my clinical work of seeing patients, performing surgery and teaching the residents to perform state-of-the-art cataract surgery with research that improves the lives of my patients.
Patient Load: 100/wk; many tertiary referrals for complicated cases
Clinical Contributions: Introduction of a new method of assessing and quantitating surgical outcomes in order to improve surgical care and results.

Other Relevant Information: I have been invited to speak nationally to professional organizations about our work in evaluating surgical outcomes.

My work has been recognized as a national model for surgical outcomes assessments.

Part III: Bibliography

Original Articles

1. Thakker MM, Perez VL, Moulin A, Cremers SL, Foster CS. Multifocal nodular episcleritis and scleritis with undiagnosed Hodgkin's lymphoma. Ophthalmology. 2003;110(5):1057-60.
2. Cremers SL, Ciolino JB, Ferrufino-Ponce ZK, Henderson BA. Objective Assessment of Skills in Intraocular Surgery (OASIS). Ophthalmology. 2005;112(7):1236-41.
3. Cremers SL, Lora AN, Ferrufino-Ponce ZK. Global Rating Assessment of Skills in Intraocular Surgery (GRASIS). Ophthalmology. 2005;112(10):1655-60.
4. Cremers, SL. Reply to Letter to the Editor by Dr. Andrew Lee. Ophthalmology. 2006.
5. Kim JY, Ali R, Cremers SL, Henderson BA. Perioperative prophylaxis for post-cataract extraction endophthalmitis. Int Ophthalmol Clin. 2007;47(2):1-14.
6. Brar N, Cremers SL. Assessing surgery skills. Ophthalmology. 2007;114(8):1587.
7. Henderson BA, Kim JY, Ament CS, Ferrufino-Ponce ZK, Grabowska A, Cremers SL. Clinical pseudophakic cystoid macular edema. Risk factors for development and duration after treatment. J Cataract Refract Surg. 2007;33(9):1550-8.
8. Kim JY, Ali R, Cremers SL, Yun SC, Henderson BA. Incidence of intraoperative complications in cataract surgery performed by left-handed residents. J Cataract Refract Surg. 2009 Jun;35(6):1019-25
9. Cremers, SL, Kossler, AL, Ciolino, J, Henderson, BA. Objective surgical assessments for residents and experienced surgeons in the Yelp Era. J Cataract Refract Surg, 2015 Nov;41(11):2593-5.
10. Ha J, Cremers SL, Korchak M, Koppinger J, Martinez JA. A New Automated Method to Grade Pterygium Severity Using Scheimpflug Imaging. Ophthalmology. 2016 Nov;123(11):2435-2436.
11. Ha J, Martinez JA, Korchak M, Cremers SL. Intraoperative Fluorescein Staining of Cryopreserved Amniotic Membrane Grafts to Improve Visualization During and After Pterygium Surgery: A Novel Technique. Cornea. 2016 Mar;35(3):413-6.

Reviews/Chapters/Editorials

1. Cremers, SL. The Long Eye. In: Pineda, et al. The Complicated Cataract. Philadelphia: SLACK; 2001.
2. Cremers, SL. . The Short Eye. In: Pineda, et al. The Complicated Cataract. Philadelphia: SLACK; 2001.
3. Cremers, SL. Anterior Segment and Lens. In: Just the Facts. New York: Mosby; 2002.
4. Cremers, SL. Reply to Letter to the Editor by Dr. Andrew Lee. Ophthalmology. 2006.
5. Cremers, SL. Amniotic Membrane Transplant. In: Hersh P, et al. Ophthalmic Surgical Procedures. New York: Thieme; 2009.
6. Crandon, A. Cremers, SL. Cataract Section. In: Hersh P, et al. Ophthalmic Surgical Procedures. New York: Thieme; 2009.
7. Cremers, SL. Lora, AN., Azar, N. Pediatric Cataract. In: Hersh P, et al. Ophthalmic Surgical Procedures. New York: Thieme; 2009.
8. Mead, M. Cremers, SL. Preoperative Care and Instructions. In: Ophthalmic Surgical Procedures. Hersh P, et al. New York: Thieme; 2009.
9. Cremers, SL. Henderson, BA. Sutured Intraocular Lens. In: Hersh P, et al. Ophthalmic Surgical Procedures. New York: Thieme; 2009.

Books, Monographs, and Textbooks

1. Hersh PS, Zagelbaum B, Cremers SL. Ophthalmic Surgical Procedures (second edition). New York: Thieme Publishing 2009.
2. Sandra Lora Cremers, MD, FACS; Sarosh Janjua,MD . Periorbital and Orbital Cellulitis . In: British Medical Journal, Editor: Dr. Shannon Amoils. London, England: British Medical Journal; 2007. (Monograph: Editor: Dr. Shannon Amoils .)

Educational Materials

1. Cremers S., Buxton D. Multilayer Amniotic Membrane Transplant for Corneal Reconstruction after Trabeculectomy. 2000.
2. Lora Cremers S. The Red Eye. 2000.
3. Lora Cremers S., Cazal J., Buxton D. Reconstructive Keratoplasty for Traumatic Anterior Staphyloma. 2000.
4. Cremers S. Meibomian Gland Disease and Blepharitis Treatment Instructions. 2004.
5. Cremers S. Guidelines for Resident Rotation on Comprehensive Ophthalmology Service. 2004.
6. Lora Cremers S. Teaching chopping techniques to Novice Surgeons. 2004.

NonPrint Materials

1. Lora Cremers S. The Red Eye; 2000. Published on Emergency.net web site.
2. Lora Cremers, S., Buxton, D. Multilayer Amniotic Membrane Transplant for Corneal Reconstruction After Trabeculectomy.; 2000.Video. Film Festival ASCRS 2000. .
3. Lora Cremers, S., Cazal, J., Buxton, D. Reconstructive Keratoscleroplasty for Traumatic

Anterior Staphyloma.; 2000.Video presented at the Film Festival ASCRS 2000.

4. Cremers SL. Teaching chopping techniques to Novice Surgeons.; 2004. Instructional video presented at the Film Festival, ASCRS 2004.

Abstracts

1. Lora Cremers, S., McCormick, S., Koster, H. . Corneal Opacities in Hypolipoproteinemic States: Biochemical and Ultrastructural Studies of Four Patients. A comparison of Tangier Disease, LCAT Deficiency Disease, and Fish Eye Disease by electron microscopy. Poster, ARVO Annual Meeting. 1998.
2. Cremers SL, Ciolino JB, Henderson BA. Attending Consistency as a Factor in the Complication Rate of Cataract Surgery by Residents. Paper Presentation, ASCRS Annual Symposium. 2004.
3. Ciolino JB, Henderson BA, Cremers SL. Retrospective Study of Vitreous Loss Rate in Cataract Surgery Performed by Residents. Poster, ASCRS Annual Symposium. 2004.
4. Ciolino JB, Cremers SL, Henderson BA. Axial Length is a Factor in the Complication Rate in Cataract Surgery Performed by Residents. Poster, ARVO Annual Meeting. 2004.
5. Cremers SL, Acharya N, Henderson BA, Ciolino J. Retrospective Study of Outcomes after Phacoemulsification Cataract Extraction and Sulcus Intraocular Lens Implantation. Poster, ARVO Annual Meeting. 2004.
6. Barat S., Ferrufino-Ponce ZK., Henderson BA., Cremers SL. Effect of Wound Location on Surgically Induced Astigmatism in Resident Cataract Surgery. Poster, ARVO Annual Meeting. 2005.
7. Wee R., Ferrufino-Ponce ZK., Cremers SL., Henderson BA. Incidence of Reoperation after Cataract Surgery. Poster, ARVO Annual Meeting. 2005.
8. Ferrufino-Ponce ZK., Tanhehco T., Henderson BA., Cremers SL. Posterior Capsular Opacification Rates of Different Intraocular lenses after Cataract Extraction by Residents. Poster, ARVO Annual Meeting. 2005.
9. Brauner S., Ferrufino-Ponce ZK., Cremers SL., Henderson BA. Incidence of Increased Intraocular Pressure on Postoperative Day one Following Cataract Surgery. Poster, ARVO Annual Meeting. 2005.
10. Cremers, SL, Lora, AN, Ferrufino-Ponce, ZK. Risk Assessment in Cataract Surgery (RACS). Poster, AAO Annual Meeting. 2005.
11. Henderson BA, Ferrufino-Ponce ZK, Grabowska A, Cremers SL . Clinical Pseudophakic Cystoid Macular Edema: Risk factors for Development and Duration after Treatment. Poster, AAO Annual Meeting. 2005.
12. Lora, AN, Cremers, SL, Ciolino, J, Rubin, P. Global Assessment of Skills in Plastic Surgery of the Eye (GASPSE). Poster, AAO Annual Meeting. 2005.
13. Kim JY, Ali R, Cremers SL, Henderson BA. Decreased Incidence of Posterior Capsular Tears and Vitreous Loss in Cataract Surgeries Performed by Left-Handed Residents. Poster, ARVO Annual Meeting. 2006.

14. Camoriano GD, Kim JY, Henderson BA, Cremers SL. Predictors of Poor Refractive Outcome in Patients after Cataract Surgery. Poster, ARVO Annual Meeting. 2006.
15. Joseph P, Kim JY, Henderson BA, Cremers SL. Report of Tamsulosin Linked Intraoperative Floppy Iris Syndrome (IFIS) Incidence, Associated Complications, and Visual Outcomes in the Large Residents' Cataract-Outcomes Database, OASIS. Poster, ARVO Annual Meeting. 2006.
16. Ciolino, JB, Kim, JY, Henderson, BA, Cremers, SL. The Role of Anterior Chamber Depth in the Complication Rate in Cataract Surgery Performed by Residents. Poster, ARVO Annual Meeting. 2006.
17. Kim, J., Brar, N, Cremers, S. Scoring Criteria for Ocular Rosacea (SCOR). Poster, AAO Annual Meeting, Las Vegas, NV. 2006.
18. Korchak, M, Ha, J., Pereira, A., Cremers, S., Martinez. A. Evaluating Pentacam Corneal Tomography and Tear Osmolarity in Pterygium. Poster, ARVO Annual Meeting. Denver, CO. 2015.
19. Ha, J., Korchak, M, Pereira, A., Martinez, Cremers, S. New Measurement for Pterygium: a Comparison of Two Methods to Analyze Corneal Involvement. Poster, ARVO Annual Meeting. Denver, CO. 2015.
20. Martinez, J., Pigotti, C., Cremers, SL. Outcomes of 1071 In-Office Pterygiectomy: Low Recurrence Rates, Cosmetic Satisfaction, Tolerability, Treatment Compliance, and Complications. Poster, ASCRS Annual Meeting. Washington DC. 2018