CALIFORNIA RETINA RESEARCH FOUNDATION

InsideRetina

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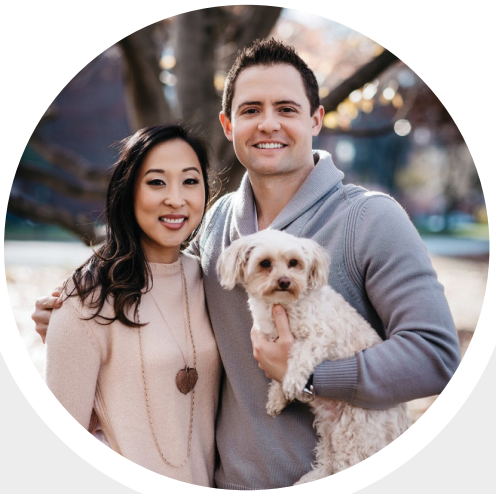


DR. DANIEL LEARNED JOINS CRC

California Retina Consultants are pleased to welcome Dr. Daniel L. Learned to their team of renowned retina specialists. Dr. Learned joined CRC in July after completing his vitreoretinal fellowship at Harvard School of Medicine's Massachusetts Eye and Ear Infirmary, where he served as Chief Fellow. Prior to this accomplishment, Dr. Learned completed his medical doctorate from Michigan State University's College of Human Medicine and his residency at the William Beaumont Hospital's Ophthalmological Residency Program where he was promoted to Chief Resident for his department.

Although this learned doctor appears to be a transplant from the Midwest and East Coast, his roots are in Paso Robles, California where he spent his formative years and where his wife Christina, an OB/GYN physician, also grew up. Daniel enjoys the outdoors and is an avid hiker and triathlete. When asked what brought him to the field of ophthalmology, Dr. Learned replied, "I enjoy performing surgery, and following patient progress in the clinic, retaining that aspect of continuity. I see my role as a retinal specialist to treat serious eye diseases with the utmost clinical competency and to do so with compassion."

CRRF'S ANNUAL EDUCATIONAL MEETING IS LARGEST TO DATE

NEARLY 200 EYE CARE PROFESSIONALS attended California Retina Research Foundation's Annual Education Meeting, making it the most well attended meeting to date.

Keynote speakers included Dr. Marco Zarbin, Professor and Chair, Department of Ophthalmology & Visual Sciences at Rutgers New Jersey Medical School, and Dr. Daniel Schwartz, Professor of Ophthalmology at UCSF School of Medicine. Both physicians discussed various topics ranging from light adjustable lenses to safety profiles of in-office eye injections to surgical management of complicated cases. In addition to the guest lectures, CRC doctors Nasir, Castellarin and See presented complex surgical case videos representing interesting cases recently seen by our doctors. Dr. Castellarin's case presentation discussed using alternative methods to treat vitreo-macular traction. Dr. Avery also presented on the current landscape of stem cell trials for dry AMD, while Dr. Pieramici discussed the role of artificial intelligence and its relation to the future of ophthalmology. A full agenda is available at californiaretinaresearch.org, and we will be uploading the presentations to the website as well.

CRC is grateful to our exhibitors: Genentech, Regeneron, Allergan, Alcon, Topcon Medical Systems, EVOA Supplements, Your Low Vision Store, and the Braille Institute.

The Research Foundation is always available to answer any questions you may have or to discuss novel therapies; please email us at crrf@californiaretina.com or call us at 805-884-5185.

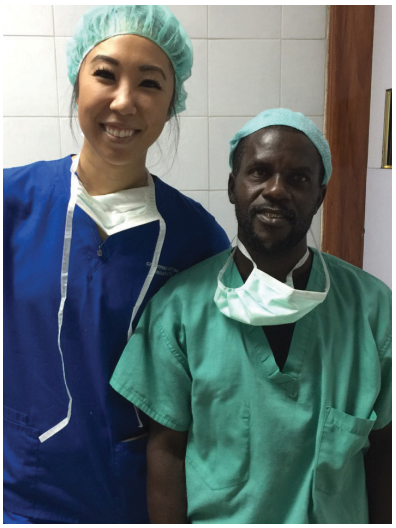
MOXI MUSEUM FEATURES CRRF AT FIRST-EVER MEMBERS NIGHT

The California Retina Research Foundation collaborated with MOXI, The Wolf Museum of Exploration + Innovation on the science museum's first-ever "Members Only" night. The "Cutting Edge of Vision" event at MOXI featured two short presentations by Dr. Pieramici; the first explored the history of artificial intelligence and its potential to impact medical practices and ways of life in the future. The new concept of 'machine learning' could greatly impact the way that medical institutions look through diagnostic images and make treatment decisions. Dr. Pieramici's second talk focused on a history of the eye throughout evolution and its adaptive relationship to other body systems.

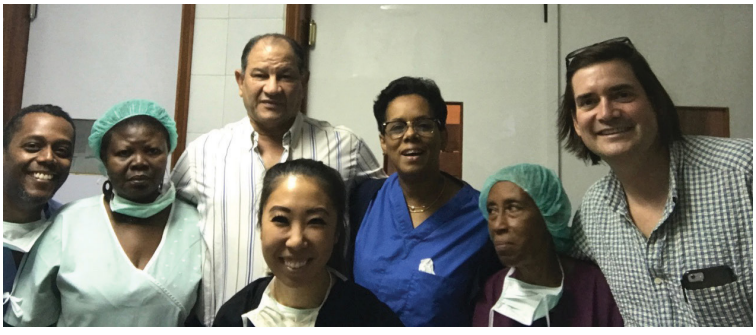
After the talks, the CRRF staff led dissection labs for all attendees, allowing guests to dissect a cow's eye. Each guest was equipped with safety equipment, forceps, scissors and a bovine eyeball and the research staff guided them through the physiology of the eye as they played surgeon. By the end of the evening, MOXI guests were familiar with the history, anatomy, and potentials for innovation in care and treatment of the eye.

CALIFORNIA RETINA RESEARCH FOUNDATION GOES TO HAITI

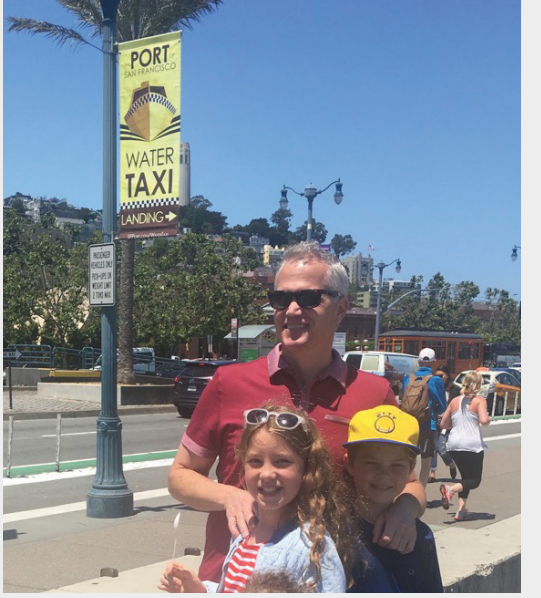
IN JUNE OF 2016, CRRF sponsored Dr. Dante Pieramici and senior clinical research coordinator Gina Hong on a successful Surgical Eye Expeditions (SEE) International humanitarian medical expedition to Port-au-Prince, Haiti. Their mission was to provide medical care to the underserved sight-impaired residents and to provide retina training to the city's only retina specialist, Dr. Reginald Taverne and his medical staff. Equipped with two large bags of donated medical supplies from various partners of SEE International, the team spent five days seeing patients in the clinic, visiting the local hospital, and performing complex vitreo-retinal surgeries. During their short week, Dr. Pieramici and Gina were able to provide training to Dr. Taverne's medical staff, give a presentation to the local hospital's residents, screen and evaluate 70 patients, and complete 17 very complicated and long surgeries. "I think we were so successful on this initial trip due to the kindness of Dr. Taverne and his staff," said Gina. The team is planning another volunteer mission to Cap Haitian, Haiti in February 2018, in hopes of providing more training and services to the underserved population there. Blindness is still an underlying cause of poverty in developing countries, and it is estimated that 80% of cases are either avoidable or treatable. By teaming up with SEE International and collaborating with ophthalmologists worldwide, CRC and CRRF hope to continue contributing services to developing populations and help restore sight around the world.



LEFT: Gina Hong added scrub nurse to her title, assisting Dr. Pieramici in the operating room alongside Jackson, a Haitian orderly. BELOW: Dr. Reginald Taverne with his Haitian medical team who assisted our CRC medical staff.



BYSTANDER CPR: A PERSONAL ACCOUNT BY NATHAN STEINLE, M.D.



A few weeks after his heart attack, the surgeon visited the exact site where he collapsed along the Embarcadero in San Francisco...this time flanked by his adoring children.

THIS SUMMER I was staying in downtown San Francisco for a long weekend. As a runner, I decided to awake early and run along the Embarcadero. It was a cool, calm, and foggy morning with very few people on the streets. I was about two miles into my run when I saw a gentleman sprawled out on the sidewalk behind a cement bench. Unfortunately, San Francisco has a significant homeless population, so at first it seemed as if the man was simply sleeping on the sidewalk. But as I passed by, his haphazard body position caught my eye along with the fact he was wearing running shorts and shoes. As I ran over to him, I could immediately tell the man was in danger. He was non-responsive with chaotic breathing and no discernable pulse. Because he had a significant chin laceration, his blood quickly covered both of us as I tried to help.

I instantly called 911 and looked around for a landmark…we were at the base of Pier 9, so I directed the operator to send help ASAP. I started CPR on the gentleman, remembering from my residency training how dreadful chest compressions sound…the audible crackling of cartilage juxtaposed with the soothing tones of the nearby bay. The man's cyanotic appearance improved, but his non-responsiveness was a grave omen. I was certain he was not going to make it. The unresponsive man's mobile phone was laying beside him on the ground, and I remember thinking how awful it was going to be when his friends and family eventually tried to call this phone…a phone that no longer had a recipient on the other end of the line.

The superb San Francisco emergency response team arrived and took over my chest compressions. They intubated the gentleman on the sidewalk and shocked him several times with an automated external defibrillator (AED). He was non-responsive and in ventricular fibrillation as he was whisked away by ambulance.

In my mind, the gentleman passed away. For several days, I kept thinking about the deafening sorrow the family must have been experiencing. Three days later I received a phone call from the San Francisco Fire Department asking if I would speak with the family. I carefully rehearsed my words as I dialed the man's family. I was going to be sure to tell them that the man did not suffer, and that he was at peace as he passed.

Miraculously, the family informed me that the man *survived*. He had suffered an instantaneous LAD heart attack while running (the infamous "widow maker"), which explained why he collapsed so suddenly…and also explained his large chin laceration and his disorganized body position on the ground. My chest compressions, and the quick acting response by the emergency responders kept just enough circulation moving that he did not experience significant cognitive impairment.

The family went on to tell me that the man is actually a fellow *physician* and a very well-respected surgeon. In fact, the man performs medical missions to help impoverished children lead better lives. He also is the loving father to three young children and the husband to a wonderful woman.

During my residency training I performed a surgical intern year, so I had ample experience in coding patients. I think the key message for others reading this article is to remember that bystander CPR is critical in preserving cognitive function and giving the patient a chance at a favorable outcome. My advice would be to activate the emergency response by initiating CPR and by calling 911 immediately when a person nearby becomes distressed. I am always deeply impressed by the promptness and skill level of emergency personnel. A second learning point would be to make sure you know where the closest defibrillator (AED) is located in the places you spend the most time. Finally, be sure to fill out your own medical information under the "Emergency" button on your cell phone. Emergency personnel can access your allergies, medical information, and emergency contacts even if the phone itself is password protected.

Seeing the joy in his family's eyes at his remarkable recovery is truly priceless. As we enter the holiday season, I am even more grateful for my own good health and for the fantastic opportunity to help people daily at California Retina Consultants.

EYE SIGHTINGS

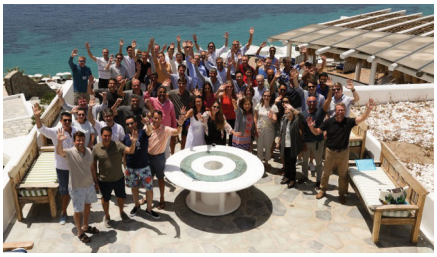
DR. MA'AN NASIR attended the Aegean Retina meeting in Santorini this past summer and the ASRS meeting in Boston.

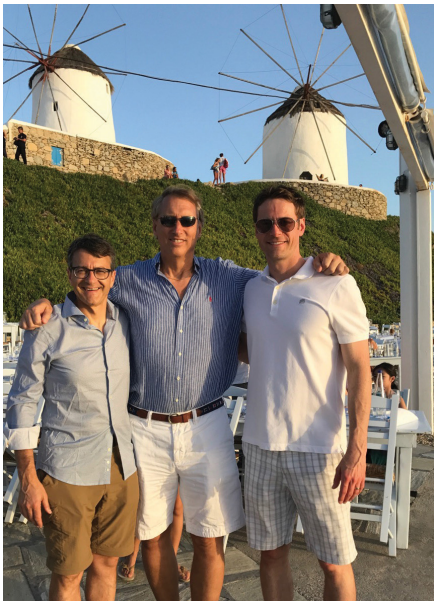
DR. DILSHER DHOOT presented at the Retina Society in Boston, the Mexican Retina Society in Mexico City, AAO in New Orleans, ASRS in Boston, and was an invited speaker for Retina Rounds at UC Irvine.

DR. NATHAN STEINLE presented at numerous research meetings, including the Cleveland Clinic Retina Symposium; ClubVit Mykonos; the ASRS meeting in Boston; the Mexican Association of Retina in Mexico City; the AAO annual meeting in New Orleans; and an investigator meeting in Dallas. In addition, Dr. Steinle accepted invitations to present at industry events in Huntington Beach, California, Twin Falls, Idaho, and Denver, Colorado.

DR. DANTE PIERAMICI attended the American Academy of Ophthalmology in November, where he presented educational talks and served on several advisory boards. Dr. Pieramici was also a visiting professor at the Colombian Retina Society in Cartagena as well as the Mexican Retina Society in Mexico City. Dr. Pieramici attended and presented educational lectures at ASRS in Boston and Club Vit in Mykonos, Greece.

DR. ROBERT AVERY presented research at AAO in New Orleans, Club Vit Mykonos and the ASRS in Boston. In addition, Dr. Avery was elected to the Board of Directors of the American Society of Retina Specialists, the largest retinal organization in the world, representing nearly 3,000 members in all 50 states, the District of Columbia, Puerto Rico and 59 countries.





UPPER LEFT: Doctors attending Club Vit in Greece and above, Drs. Castellarin, Avery and Steinle at the famous Mykonos windmills. LEFT: Dr. Dhoot presenting at Annual Retina Society meeting in Boston; and Drs. Steinle, Singh, Pieramici and Dhoot at the American Academy of Ophthalmology Meeting.

California Retina Research Foundation

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CRC SELECTED AS SITE FOR PROMISING OPTHEA CLINICAL TRIAL IN THE TREATMENT OF WET AMD

WET MACULAR DEGENERATION IS A COMPLICATED DISEASE. Many growth factors interact with our genome which in turn interacts with environmental influences to produce the growth of abnormal blood vessels underneath the retina that are the hallmark of wet age-related macular degeneration (AMD). These vascular complexes (neovascularization) grow insidiously under the retina until they leak and bleed within the central visual area of the retina (the macula). Wet AMD subsequently causes central visual distortions and blurring. If left untreated, wet AMD causes permanent central fibrosis and can lead to central blind spots.

Fortunately, sophisticated drugs were introduced for the treatment of wet AMD beginning in 2004, including pegaptanib, ranibizumab, bevacizumab and subsequently aflibercept, which was approved in 2011. All four of these drugs work primarily by blocking a specific molecule that plays a critical role in the growth of abnormal blood vessels: vascular endothelial growth factor-A (VEGF-A). Thus, all of these drugs block VEGF-A and are collectively known as "anti-VEGF-A" therapies. Another anti-VEGF-A drug will likely enter the American market in 2019 (brolucizumab).

These anti-VEGF-A drugs have revolutionized the way we treat wet AMD and have preserved the vision of millions of Americans. However, there is always room for improvement. With the current anti-VEGF-A treatments, patients receive an injection into the eye nearly every month. Even with aggressive VEGF-A suppression, the leaky vessels continue to bleed and cause vision loss in some patients. Thus, scientists continue to search for improved treatments and CRC is often at the forefront of these efforts.

An Australian-based company is making significant inroads in improving the treatment of wet AMD with a new drug therapy called Opthea. Specifically, the company's investigative molecule (OPT-302) blocks VEGF-C and VEGF-D. This new molecule was offered through a revolutionary Phase 1/2A trial at California Retina Consults in 2016. In this trial, patients were given the new molecule along with an existing anti-VEGF-A molecule. The combination of these therapies proved vital in treating the disease. OPT-302 combination therapy showed improvements in vision and retinal thickness in wet AMD patients who were either treatment naïve or had received previous treatment solely with anti-VEGF-A agents. Overall, the trial suggests an additive benefit of OPT-302 combination therapy with suppression of VEGF A, C, and D.

Dr. Nathan Steinle and his research staff recently provided feedback on the Phase 1/2A trial in Dallas, where the team also received the exciting news that several CRC locations have been invited to participate in Opthea's upcoming Phase 2B wet-AMD trial. By blocking VEGF A, C, and D, the trial aims to provide superior visual results with perhaps fewer injections. Enrollment for this trial will focus on treatment naïve wet AMD patients and will begin in our Santa Barbara and Santa Maria offices in December 2017; a phase II trial using this same drug to treat diabetic macular edema (DME) will begin in early 2018.

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CRC IS ONLY WEST COAST SITE SELECTED FOR NEW GENE THERAPY TRIAL

ONCE AGAIN, CRC is at the forefront of ophthalmic therapy. CRC has been invited to participate in a Phase 1 trial of a novel gene therapy for neovascular macular degeneration. In this trial, patients receive a single sub-retinal injection of a vector that inserts the gene for an anti-VEGF agent almost identical to ranibizumab (Lucentis) into retinal cells near the area of macular degeneration. These cells then manufacture the anti-VEGF agent, and the hope is that the body will treat the wet macular degeneration itself, without the need for repeated intra-vitreal injections administered at our offices. Dr. Robert Avery, principal investigator of this trial, recently traveled to Boston to attend the surgery on one of the first patients treated in the trial in order to be certified to initiate the procedure in Santa Barbara. There are only five other sites participating in the trial, and none on the West Coast. "We are pleased to be able to bring this exciting new technology to the Central Coast," said Dr. Avery. "It's too early to know if this therapy will be able to produce sufficient concentrations of the anti-VEGF agent to successfully treat AMD, as this is an early safety and proof of concept study, but if it is eventually shown to be effective, it could be a game changer in the way wet AMD is treated." The trial is expected to begin in January 2018. Please contact Gina Hong in Santa Barbara (805-963-1648) to find out more about this exciting trial.