

**The Faculty of Medicine of Harvard University
Curriculum Vitae**

Date Prepared: March 10, 2022
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Place of Birth: Manila, Philippines

Education:

1997	BS <i>cum laude</i> with honors	Pharmacy	College of Pharmacy, University of the Philippines
2002	MD	Medicine	College of Medicine, University of the Philippines
2014-2015		Leadership Development Program	Asia Pacific Academy of Ophthalmology

Postdoctoral Training:

5/1997-7/1997	Intern	Pharmacy	Philippine General Hospital
5/2001-4/2002	Intern	Medicine	Philippine General Hospital
11/2002-12/2002	Pre-residency	Ophthalmology	Philippine General Hospital
1/2003-12/2004	Resident	Ophthalmology	Sentro Oftalmologico Jose Rizal, Philippine General Hospital
6/2004	Clinical Observer	Uveitis (C. Stephen Foster)	Massachusetts Eye and Ear (MEE)/ Harvard Medical School (HMS)
6/2005	Clinical Observer	Ocular Immunology and Uveitis	Singapore National Eye Center
6/2005	Clinical Observer	Vitreoretina	Singapore National Eye Center
7/2007-7/2008	Clinical Fellow	Retina, Diabetic Eye Disease	Joslin Diabetes Center/HMS

Faculty Academic Appointments:

5/2010-1/2015	Instructor	Ophthalmology	Harvard Medical School
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2/2015- 11/2021	Assistant Professor	Ophthalmology	Harvard Medical School
12-2021 -	Associate Professor	Ophthalmology	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions:

12/2006- 4/2007	Affiliate Consultant	Ophthalmology	International Eye Institute, Sr. Luke's Medical Center, Quezon City, Philippines
8/2009-	Active Staff	Ophthalmology	Retina Service, International Eye Institute, St. Luke's Medical Center, Global City, Philippines
10/2009-	Active Staff	Ophthalmology	Beetham Eye Institute, Joslin Diabetes Center
1/2010	Associate Surgeon	Surgery, Division of Ophthalmology	Brigham & Women's Hospital
8/2010	Attending Staff	Surgery, Division of Ophthalmology	Beth Israel Deaconess Medical Center
8/2012	Active Consultant	Retina Service, Ophthalmology	The Medical City, Philippines
10/2012	Attending Staff	Ophthalmology	MEE
2/2013- 2/2014	Research Associate	Research Division	Joslin Diabetes Center
8/2013-	Research Collaborator	Ophthalmology	Philippine Eye Research Institute, National Institutes of Health, Philippines
2/2014-	Assistant Investigator	Research Division	Joslin Diabetes Center

Other Professional Positions:

4/2007- 4/2010	Visiting Staff, Department of Ophthalmology and Visual Sciences	Manila Doctor's Hospital, Manila, Philippines
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Major Administrative Leadership Positions:

Local

1/2003- 12/2006	Academic Coordinator, Medical Students Rotating in Ophthalmology and Visual Sciences	University of the Philippines, College of Medicine
1/2005- 12/2005	Assistant Chief Resident for Research	Sentro Oftalmologico Jose Rizal, Philippine General Hospital
1/2006- 12/2006	Chief Resident	Sentro Oftalmologico Jose Rizal, Philippine General Hospital

7/2008-8/2009	Chief Fellow, Retina, Diabetic Eye Disease	Joslin Diabetes Center/HMS
7/2008-8/2009	Coordinator, Lilly Diabetes Clinical Update Lecture Series	Joslin Diabetes Center/HMS
10/2009-	Assistant Chief of Telemedicine	Joslin Diabetes Center/HMS
11/2012-	Head, Teleophthalmology Program	The Medical City, Philippines
11/2012-	Associate Program Director, Retina Fellowship	Beetham Eye Institute, Joslin Diabetes Center/HMS
8/2013-	Research Collaborator	Institute of Ophthalmology, National Institutes of Health, Philippines
Regional		
7/2008-10/2008	Ophthalmology Coordinator	Koch Eye Associates – Joslin Vision Network, Providence, RI
Committee Service:		
Local		
2006	Residency Selection Committee	Philippine General Hospital/Department of Ophthalmology and Visual Sciences Member
2014-	Clinical Transformation Team	Joslin Diabetes Center Member
2014-2016	NextGen Electronic Medical Record Development Team	Joslin Diabetes Center Member
National (United States)		
2011-	Evidence-based Guideline Development Group: Caring for the Patient with Diabetes Mellitus	American Optometric Association Member
2013-	Protocol Development Committee for Ultrawide Field Imaging	Diabetic Retinopathy Clinical Research Network (DRCR.net) Member
2014	Network of Experts on Diabetic Retinopathy	American Academy of Ophthalmology (AAO) – Food and Drug Administration, Department of Health and Human Services, USA Panelist
National (Philippines)		
2014	Associate Member	Medical Sciences Division, National Research Council of the Philippines
2015-	Regular Member	

International

2015, 2020	Participant in Focus Group. Professional impact of the COVID-19 pandemic on the Asia-Pacific.	American Academy of Ophthalmology
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Professional Societies:

1997	Pi Sigma Biological Honor Society	Member
1997	Phi Kappa Phi Honor Society	Member
1997	Philippine Pharmaceutical Society	Member
2002-2007, 2012-	Manila Medical Society	Member
2002-2007, 2012-	Philippine Medical Association	Member
2003-2006	Philippine Society of Cataract and Refractive Surgery	Member
2003-	Philippine Academy of Ophthalmology	Member
2006-2007, 2012-	American Academy of Ophthalmology	Member
2007-	Association for Research in Vision and Ophthalmology (ARVO)	Member
5/2012-		Member, Global Membership Committee
2009-	American Telemedicine Association	Member
5/2009-5/2011		Vice-Chair, Ocular Telehealth Special Interest Group
3/2011		Member, Evidence-based Guideline Review Committee
5/2011		Member, Reimbursement Working Group
5/2011		Member, Scientific Poster Review Committee
5/2011-5/2013		Chair, Ocular Telehealth Special Interest Group
8/2012		Member, Scientific Review Committee
2009-2010	American Medical Association	Member
2011-	American Society of Retinal Specialists	Member
2011-	Vitreoretinal Society of the Philippines	Member
6/2014-12/2014		Member, Intravitreal Injection Consensus Development Committee
2015-	Retina Society	Member
2017-	Macula Society	Member

2018- Asia Pacific Vitreoretinal Society Life Member

Grant Review Activities:

2009	Special Emphasis Panel: ZRG1 BDA-A 58 R, RFA OD09-003 Challenge Grant Panel #10 6/2009-7/2009	Center For Scientific Review, National Institutes Of Health, Department Of Health And Human Services Grant Reviewer
2010	Wellcome Trust/ DBT India Alliance 12/2010	Wellcome Trust, UK and Department of Biotechnology, India Grant Reviewer
2012	Deshpande Center for Technological Innovation 7/2012	Massachusetts Institute of Technology (MIT) Grant Reviewer
2013	Grant Review 2/2013	Fight For Sight, United Kingdom Grant Reviewer
2014-	Grant Review 2014-	Qatar National Research Fund Grant Reviewer
2018-	Grant Review 2018-	Stanford Diabetes Research Center Grant Reviewer

Editorial Activities:

Ad hoc Reviewer

1. *Ophthalmology*
2. *Acta Ophthalmologica*
3. *American Journal of Ophthalmology*
4. *Retina*
5. *Archives of Ophthalmology*
6. *Investigative Ophthalmology and Visual Sciences (IOVS)*
7. *Clinical Ophthalmology*
8. *Endocrine Practice*
9. *Journal of the ASEAN Federation of Endocrine Societies (JAFES)*
10. *Telemedicine and E-Health*
11. *British Journal of Ophthalmology*
12. *Diabetes Care*
13. *Current Diabetes Reports*
14. *Journal of Telemedicine and Telecare*
15. *Diabetes Technology & Therapeutics*
16. *Graefe's Archive for Clinical and Experimental Ophthalmology*
17. *Ophthalmology and Eye Diseases*
18. *IEEE Journal of Biomedical and Health Informatics*
19. *Ophthalmic Epidemiology*
20. *Neuro- Ophthalmology*
21. *Eye*
22. *Asia-Pacific Journal of Ophthalmology*

Other Editorial Roles

2013	Editorial Board	<i>International Journal of Innovative Medicine and Health Sciences (IJIMHS)</i>
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2013	Editorial Board		<i>Diabetes Research and Treatment: Open Access</i>
2014	Co-Editor, Special Section on Technology for Monitoring and Treating Diabetic Eye Disease		<i>Journal of Diabetes Science and Technology</i>
2016-2017	Editor-in-Chief		<i>Philippine Journal of Ophthalmology</i>
2016	Section Co-Editor		<i>Current Diabetes Reports</i>
2016	Associate Editor		<i>Acta Ophthalmologica</i>

Honors and Prizes:

1997	UP Pharmaceutical Alumni Association Scholar	College of Pharmacy, University of the Philippines Manila	Academic Excellence, ranked 1 st in graduating class
2000-2001	College Scholar	College of Medicine, University of the Philippines, Philippine General Hospital	Academic Excellence, ranked 4 th of 145 medical students
2000-2001	Outstanding Clinical Clerk in the Department of Internal Medicine Outstanding Clinical Clerk in the Department of Family and Community Medicine	College of Medicine, University of the Philippines, Philippine General Hospital	ranked in the top 10 of 145 medical students, AY 2000-2001
2002	Most Outstanding Intern in the Department of Ophthalmology and Visual Sciences Outstanding Intern in the Department of Pediatrics Outstanding Intern in the Department of Surgery Outstanding Intern in the Department of Otorhinolaryngology	Philippine General Hospital	ranked 2 nd of Ten Outstanding Clinical Interns in PGH (250 interns)
2002	Physician Licensure Examination—ranked 6 th of 1482	Philippine Regulatory Commission	
2002	Certificate of Distinction	Board of Medicine, Professional Regulatory Commission, Philippines	Exemplary Performance during the Physician Licensure Examination
2002	Thelma J. Yambao Memorial Award	College of Medicine, University of the Philippines	Awarded to graduates garnering the highest ratings in the Physician Licensure Examinations

2002	Award of Recognition	Philippine Medical Association	Awarded for setting the standards of excellence during the Physician Licensure Examinations
2002	Special Citation	College of Medicine, University of the Philippines, Manila	Awarded for setting the standards of excellence during the Physician Licensure Examinations
2002	Letter of Recognition	Office of the President, University of the Philippines, Quezon City	Awarded for setting the standards of excellence during the Physician Licensure Examinations
2003	Basic Course in Ophthalmology, ranked 1 st over-all	Department of Ophthalmology and Visual Sciences, Philippines General Hospital	
2004	OPEX-2004 – Ophthalmology Resident Physician In Service Examination, ranked 1 st over-all (PGY 1-4)	Department of Ophthalmology and Visual Sciences, Philippines General Hospital	
2005	OPEX-2005 – Ophthalmology Resident Physician In Service Examination, ranked 1 st over-all (PGY 1-4)	Department of Ophthalmology and Visual Sciences, Philippines General Hospital	
2006	Diplomat Examination, ranked 1 st over-all, in both written and oral examinations	Philippine Board of Ophthalmology	
2009	Best Poster	2009 Updates in Ophthalmology, Annual Meeting of the Department of Ophthalmology, HMS	
2010	Travel Scholarship	Association for Research in Vision and Ophthalmology Summer Research Conference	
2012	Asia Pacific Vitreoretinal Society Tano Travel Grant	8 th International Symposium of Ophthalmology	
2013	Young Clinician Award	Center for Integration of Medicine and Innovative Technology (CIMIT)	
2013	Eleanor and Miles Shore 50 th Anniversary Fellowship Program for Scholars in Medicine	HMS	

2013	The Outstanding Young Men (TOYM), Philippines – Awardee for Medicine	JCI Philippines and Jerry Roxas Foundation	presented by Philippine President Benigno S. Aquino III at Rizal Hall of the Malacañan Palace
2014	Outstanding Young Scientist in the Field of Ophthalmology	National Academy of Science and Technology, Philippines	awarded for leading the 1 st teleophthalmology program for diabetic retinal disease in the Philippines, making low-cost, safe, and standardized treatments available
2014	International Ophthalmologist Education Award	American Academy of Ophthalmology (AAO)	
2014	Presidential Award for Filipinos Overseas	Office of the President, Republic of the Philippines	for pioneering contributions in retina research in the US and helping to establish the 1 st telemedicine program for diabetic eye disease in the Philippines
2015	Sight First Research Grant	Lions Clubs International Foundation	
2015	Excellence in Innovation	St. Lukes Medical Center	
2016	International Scholar Award	American Academy of Ophthalmology (AAO)	
2016	Best Mentor Award (Retina)	The Medical City, Philippines	
2017	Achievement Award	American Academy of Ophthalmology (AAO)	
2018	Outstanding Book Award	Department of Science and Technology, Republic of the Philippines	Villalon, PT, Aguilar RB, Silva PS, Loy MJ, eds. The Retinal Handbook. 1st Edition. St Lukes Medical Center Publishing. 2018
2021	Best Mentor Award (Retina)	The Medical City, Philippines	

Report of Funded and Unfunded Projects

Funding Information:

Past

2005-2006	Intravitreal Pharmacokinetics of Triamcinolone Acetonide After a Single Transseptal Injection Research Implementation and Development Office, University of the Philippines
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Co-PI (PhP 160,000 direct cost)

The purpose of this investigation was to report the intravitreal pharmacokinetic of triamcinolone acetonide after a single transseptal injection.

- 2007-2008 Retinal Imaging Tests for Systemic Microvascular Functions
NIDDK, 5 R21 DK063511-02
Investigator
The major goal of this study was to see if there is an association between retinal electrical function as assessed by multifocal electroretinography and peripheral diabetic neuropathy.
- 2008-2009 Retinal Blood Flow as a 10-Year Predictor of Diabetic Retinopathy
Juvenile Diabetes Research Foundation International
Investigator
The major goal for this study was to determine the viability of retinal blood flow measurements as a long-term predictor of diabetic retinopathy progression.
- 2009-2011 Diabetic Retinopathy Is Associated With Increased Vascular Stability
Juvenile Diabetes Research Foundation International
Investigator
The purpose of this study was to establish whether the pathogenesis of proliferative diabetic retinopathy depends not only on the alteration of pro and anti-angiogenic growth factors, but also on decreased levels of vascular regression mediators.
- 2009-2012 Evaluation of Optos Retinal Imaging to Assess Level of Diabetic Retinopathy.
Juvenile Diabetes Research Foundation International
Investigator
The major goal for this study was to validate a wide-field digital fundus imaging system against gold-standard Early Treatment Diabetic Retinopathy-protocol 7 standard field stereoscopic fundus photographs for use in ophthalmic clinics and/or clinical trial-grade protocols.
- 2009-2015 An evaluation of intravitreal ranibizumab for vitreous hemorrhage due to proliferative diabetic retinopathy
Diabetic Retinopathy Clinical Research Network, NIH
Site PI
This study was conducted to determine if intravitreal injections of ranibizumab decrease the proportion of eyes in which vitrectomy is performed compared with saline injections in eyes presenting with vitreous hemorrhage from proliferative diabetic retinopathy.
- 2009-2016 Early Retinal Changes in Diabetic Pediatric Populations (JVN – Venezuela)
Morella Mendoza Grossman Foundation
Investigator
The purpose of this study was to identify early retinal changes from diabetes in pediatric populations that would indicate an increased risk for progression to more severe retinopathy.
- 2009-2016 Randomized Trial Evaluating Ranibizumab Plus Prompt or Deferred Laser or Triamcinolone Plus Prompt Laser for Diabetic Macular Edema
Diabetic Retinopathy Clinical Research Network, NIH
Investigator
To evaluate efficacy and safety of 0.5-mg intravitreal ranibizumab plus prompt (within 1 week) or deferred laser (≥ 24 weeks), or 4-mg intravitreal triamcinolone plus prompt

(within 1 week) laser, in comparison with sham plus prompt laser for treatment of diabetic macular edema.

- 2011-2015 A Phase II Evaluation of Topical NSAIDs in Eyes with Non Central Involved DME
Diabetic Retinopathy Clinical Research Network, NIH
Investigator
This study was conducted to assess the effects of topical NSAIDs on macular retinal volume compared with placebo in eyes with non-central DME.
- 2011-2016 Effect of Diabetes Education during Retinal Ophthalmology Visits on Diabetes Control
Diabetic Retinopathy Clinical Research Network, NIH
Investigator
The primary objective was to assess whether glycemic control (assessed with HbA1c measurement) in individuals with type 1 or type 2 diabetes can be improved with a point-of-care measurement of HbA1c in the ophthalmologist's office combined with a personalized risk assessment for diabetic retinopathy and other complications of diabetes and educational information about diabetes.
- 2013-2014 Point of Care Evaluation for Diabetic Retinopathy at the Time of Retinal Imaging
Center for Integration of Medicine and Innovative Technology
PI (\$45,000 direct cost)
The primary objective of this investigation was to assess the ability of retinal imagers to identify the presence or absence of diabetic retinopathy in a patient's ultrawide field retinal images at the conclusion of the patient imaging encounter compared to standard retinal evaluations performed at a centralized reading center performed by licensed and certified image readers.
- 2013-2016 System for Increasing Patient Access to Eye Exams for Diabetic Retinopathy
NIH SBIR EY020017
PI (\$148,569 direct costs)
The major goal for this study was to validate a digital light projection system against gold-standard Early Treatment Diabetic Retinopathy-protocol 7 standard field stereoscopic fundus photographs for use in ophthalmic clinics and/or clinical trial-grade protocols.
- 2015-2017 Epidemiological Assessment of Avoidable Blindness and Diabetic Retinopathy in
Region 3 of the Philippines
Lions Club International Foundation
Principal Investigator (USD 88,902)
The principal aim of this proposed study is to determine the specific regional prevalence of avoidable blindness and diabetic retinopathy using a focused and validated epidemiological survey in a highly underserved geographical area of the Philippines. This area has been shown to have the highest rate of blindness and lowest quintile of socioeconomic development in the Philippines.
- 2017 Mobile Teleophthalmology Program for Remote Diabetic Retinopathy Evaluation
Concept Stage Grant, Newton Fund, UK
PI
To develop a full proposal to establish a diabetic retinopathy screening programme within a previously characterized and underserved target population (Region 3) in the Philippines.

- 2018-2019 Comparison of RetinaVue Imaging to Mydriatic 7-Standard Field Early Treatment Diabetic Retinopathy Study (ETDRS) Protocol Digital Imaging in Evaluating Diabetic Retinopathy
Welch Allyn
PI (\$159,207)
To evaluate the ability of images acquired using the RetinaVue to diagnose level of diabetic retinopathy and macular edema compared to UWF retinal images and compared to clinical examination through dilated pupils by retinal specialists.
- 2018-2019 Comparison of Nonmydriatic Eidon® Imaging to Mydriatic Ultrawide Field Retinal Imaging in Evaluating Diabetic Retinopathy
Indian Health Service
PI (\$81,173)
To evaluate the ability of images acquired using the Eidon® to diagnose level of diabetic retinopathy and macular edema compared to UWF retinal images and compared to clinical examination through dilated pupils by retinal specialists.
- 2014-2020 Predicting Outcomes & Anti-VEGF Response in Diabetic Eyes by Adaptive Optics SLO R01EY024702-03 (Sun)
Co-investigator
To predict outcome and anti-VGEF response in diabetic eyes by the use of adaptive optics scanning laser ophthalmoscopy.
- 2015-2020 Molecular and Anatomic Biomarkers of Vision and Response to AntiVEGF in Eyes with Diabetes
3-SRA-2014-264-M-R (Sun), JRDF
Co-investigator
To identify molecular and anatomic biomarkers of vision and response to antiVEGF in eyes with diabetes.
- 2016-2020 Ultrawide Field Image Sharing Agreement
Optos, plc
Co-investigator
To develop deep machine learning algorithms to aid in the detection and classification of the diabetic retinopathy in ultrawide field retinal images.
- 2012-2020 A Comparative Effectiveness Study of Intravitreal Aflibercept, Bevacizumab, and Ranibizumab for Diabetic Macular Edema Diabetic Retinopathy Clinical Research Network, NIH
Site PI (\$156,750 direct costs)
The primary objective of the protocol is to determine if intravitreal bevacizumab is non-inferior with regard to efficacy and safety compared with ranibizumab when given to treat center-involved diabetic macular edema (DME) in eyes with visual acuity of 20/32 to 20/320.

Current

- 2014-2022 Diabetic Retinopathy: Pathogenesis, Prediction and Prevention
Massachusetts Lions Research Fund
Co-PI (USD 105,000 direct costs)
To predicting retinopathy progression using highly specific retinal biomarkers for predicting retinopathy progression and macular edema development.

- 2019-2022 Novel biomarkers and genetics of diabetic retinopathy
5R01EY028606-02 (Das) NIH/NEI
Subcontract PI (\$79,987)
This study will evaluate the genetic markers that underlie differing susceptibility to diabetic retinopathy. This research is being done to evaluate role of genetic factors in diabetic retinopathy and the use of genetic markers for future diagnosis of diabetic retinopathy. 800 people will participate across the United States. The National Eye Institute (NEI), part of the National Institutes of Health (NIH), is funding this study.
- 2018-2022 UK-Philippines Remote Retinal Evaluation Collaboration in Health: Diabetic Retinopathy (REACH-DR)
UK Newton Fund and Philippine Council on Health Research and Development
PI (GBP 600,000)
To establish a diabetic retinopathy screening program in a previously characterized target population (Region 3) in the Philippines.

Unfunded Current Projects

- 2007– Investigator / Study of Genes and Enzymes Responsible for Diabetic Retinopathy.
The purpose of this project is to identify genetic variants and/or molecules that are associated with either progression to or protection from advanced diabetic retinopathy.
- 2008– Investigator / Difference in Outcomes Among 12, 370 Patients with Type 1 and Type 2 Diabetes
The purpose of this study is to compare the ophthalmic outcomes and identify specific risk factors among patients with type 1 and type 2 diabetes.
- 2010– PI/Lack of Diabetic Retinopathy Awareness and Timely Follow-Up Among Patients with Diabetes
To assess self-reported diabetic retinopathy (DR) awareness and timeliness of patient-reported eye care provider schedule follow-up among diabetic patients.
- 2013– PI/ Follow-up Ancillary Study on the Evaluation of Ultrawide Field Retinal Imaging to Assess Level of Diabetic Retinopathy
To evaluate the prognostic value of DR lesions identified by ultrawide field imaging in areas not imaged by ETDRS photos and determining whether the specific risk of DR progression in an individual patient is provided by the additional information compared to ETDRS photos alone.
- 2014– PI/Association of Peripheral Retinal Lesions with Nonperfusion Identified with Ultra wide Field Fluorescein Angiography in Patients with Diabetic Retinopathy
To determine the association of predominantly peripheral diabetic retinopathy lesion with nonperfusion identified on ultrawide field fluorescein angiography.
- 2015– PI/ Association of Retinal Nonperfusion and Retinal Oximetry in Diabetes Eyes
To determine the relationship between retinal nonperfusion with retinal oximetry in varying levels of diabetic retinopathy severity.
- 2017– PI/ Identifying Retinal Image Markers for Diabetic Retinal Disease
To identify novel retinal markers for diabetic retinopathy severity and progression.

Report of Local Teaching and Training

Teaching of Students in Courses:

2003-2006	Clinical Clerkship in Ophthalmology Clinical Clerks	Department of Ophthalmology and Visual Sciences, Philippines General Hospital Preceptor, 6 hours every 2 weeks
2008	Technician Education Series Ophthalmic Technicians	Beetham Eye Institute, Joslin Diabetes Center 1-hour session
2010-2012, 2014-2015	Patient Doctor II course	HMS 2 nd year medical and dental students, 4 hours/year

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

2006	OPEX 2006 Ophthalmology Resident Physician In Service Examination ophthalmology residents	Department of Ophthalmology and Visual Sciences, Philippines General Hospital Examination Coordinator
2006	Basic Course in Ophthalmology ophthalmology residents	Department of Ophthalmology and Visual Sciences, Philippines General Hospital Assistant Coordinator
2007	Fluorescein Conference Residents and Clinical Fellows	Beth Israel Deaconess Medical Center 1-hour lecture
2009- 2012-	Joslin Retina Fellows Teaching Rounds The Medical City Endocrinology Fellows Teaching Rounds	1-hour, Once per month 1 hour lecture (1x/year)
2018-	Longwood Endocrine Fellows' Didactic Series: Diabetic Retinopathy	1-hour lecture (2x/year)

Clinical Supervisory and Training Responsibilities:

2008-2009	Supervision and meetings with 1 st year clinical fellows at Beetham Eye Institute	4 hours per week
2009-	Adjudication of retinal images to Joslin Vision Network Graders	1 day per week
2009-	Clinic attending physician supervising clinical retina fellows at Beetham Eye Institute	2 half days per week

Laboratory and Other Research Supervisory and Training Responsibilities:

2009-	Supervision of Beetham Eye Institute fellows in clinical research projects	2 hours per week
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Formally Mentored Harvard Medical, Dental and Graduate Students:

2016-2018	Omar Abu Qamar, MD, MMS / Ophthalmology Resident, Tufts University, Research Mentor for "Assessing the Knowledge, Attitude and Practice of Patients with Diabetes Regarding Eye Care in Region 3 of the Philippines" which was funded by the HMS Center for Global Health Delivery (Medical Student Award) during his Masters degree at Harvard Medical School.	
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Other Mentored Trainees and Faculty:

- 2012 -2021 Associate Medical Retina Fellowship Director
Supervised the training of a total 29 Retina Fellows at the Beetham Eye Institute, Joslin Diabetes Center
Saloni Walia (2009-2010), Cecilia Sanchez (2009-2010), Motassem Al-Lateyfah (2009-2010), Ahmed Soliman (2010-2012), Prisca Diala (2010-2011), Jason Noble (2010-2011), Jerald Wisdom (2010-2011), Abumare Akinwale (2011-2012), Kellie Dyer (2012-2013), Ahmed Omar (2012-2013), Hasanain Shikari (2013-2014), Emily Deschler (2013-2014), Nour Haddad (2011-2015), Aditi Gupta (2015-2017), Scott Peterson (2016-2017), Gary Yau (2016-2017), Alex Pisig (2017-2018), Yousef Aldairy (2017-2018), Mohamed Elmasry (2017-2020), Omar Abdelal (2018-2019), Siamak Shokrollahi (2018-2019), Michael Gilbert (2019-2020), Abdu Rageh (2019-2020), Cris Martin Jacoba (2020-), Ward Fickweiler (2020-)
- 2015 Nisarg Chhaya, 4th year Medical School Student, University of Massachusetts, Jose Chua and Miguel Pascual, 4th year Medical Students, University of the Philippines, Manila
Research supervision on the evaluation of low cost digital light projection camera compared to early treatment diabetic retinopathy protocol color stereoscopic retinal photography to assess level of diabetic retinopathy with results provided of Aeon Imaging.
- 2016 Nicholas Spanos, 4th year Tufts University Medical Student
Research supervision on the evaluation of diabetic retinopathy severity and retinal oximetry in diabetic patients, results presented at NIDDK Student Research Symposium.
- 2017 Marvin Lichauco, 4th year Medical Student, University of the Philippines, Manila
Research supervision the pretesting of the Knowledge, Attitudes and Practice questionnaire that was used in the final KAP study performed in region 3 of the Philippines.
- 2018 Inno Villcasin and Gian Aurelio, 4th year Medical Students, University of the Philippines, Manila
Development of an ultrawide field retinal image atlas.
- 2019 Oscar Acopiado and Enrique Fontanilla, 4th year Medical Students, University of the Philippines, Manila
Development of Retinal Measurement Tool on Ultrawide Field Images

Formal Teaching of Peers (17, CME and other continuing education courses):

No presentations below were sponsored by outside entities

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| 2011 | Diabetes 2011: From Research to Clinical Practice
"Diabetic Retinopathy: Current Approach to Diagnosis and Treatment" | Lecture
Joslin Diabetes Center, HMS |
| 2012, 2013 | Advances in Diabetes and Thyroid 2012/2013:
Current Management of Diabetic Retinopathy | Lecture
Joslin Diabetes Center, HMS |
| 2012, 2013 | Diabetes in 2012/2013: From Research to Clinical Practice
"Diagnosis and Treatment of Diabetic Retinopathy" | Lecture
Joslin Diabetes Center, HMS |

2013	Joslin Vision Network Certification Course: University of California, San Francisco Teleophthalmology Program (1 ophthalmologist, 3 optometrists)	Instructional Course Boston, MA
2014	Management of Diabetes in 2014: The Need to Combine Art and Science: Current Management of Diabetic Retinopathy	Lecture Joslin Diabetes Center, HMS
2015	Diabetes Live: Diabetic Retinopathy: Role of the Primary Care Provider in the Optimal Care Model – Strategies for Prevention and Risk Reduction	Lecture Boston, MA
2015, 2017	Joslin Vision Network Certification Course: Indian Health Service. Teleophthalmology Reading Center (1 ophthalmologist, 1 optometrist)	Instructional Course Boston, MA
2017	Joslin Vision Network Certification Course: Beetham Eye Institute JVN reading center (2 optometrists)	Instructional Course Boston, MA
2018, 2019, 2021	Diabetic Complication Series: Diabetic Retinopathy Longwood Endocrinology Fellows Didactic Lectures	Lecture Boston, MA
2020	Telemedicine Approaches for Diabetic Retinopathy Evaluation. Diabetic Eye Disease Consults	CME Course Purdue University
2020, 2021	Prevention and Management of Diabetes Complications: Preventing Diabetic Retinopathy Development and Progression. Harvard Live Stream CME	Lecture Boston, MA

Local Invited Presentations (8):

No presentations below were sponsored by outside entities

2007	Idiopathic Choroidal Folds / Longwood Medical Area Ophthalmology Conference Department of Ophthalmology, HMS
2008	Pars plana vitrectomy, phacoemulsification and intraocular lens implantation in diabetic patients: Comparing outcomes of combined surgery versus pars plana vitrectomy alone / Longwood Medical Area Ophthalmology Conference Department of Ophthalmology, HMS
2009	Role of Corticosteroids in the Management of Diabetic Macular Edema and Proliferative Retinopathy / Fellow's Course Department of Ophthalmology, HMS
2010	Ocular Telemedicine for Diabetic Retinopathy and the Joslin Vision Network / Fellow's Course as Preceptor Department of Ophthalmology, HMS
2013	Ocular Telehealth for Diabetic Retinopathy: Leveraging New Technologies and their Impact on Emerging Diabetes Populations / Symposium Talk Mass Eye and Ear Ophthalmology Annual Meeting, Boston, MA

- 2015 Ultrawide field retinal imaging for diabetic retinopathy / Longwood Medical Area Ophthalmology Conference
Department of Ophthalmology, HMS
- 2018 Ultrawide Field Retinal Imaging For Diabetic Retinopathy: The Journey to the Edge and Back / Grand Rounds
Mass Eye and Ear Ophthalmology, Boston, MA
- 2019 Ultrawide Field Retinal Imaging For Diabetic Retinopathy: When Knowledge Predates Technology. Clinical Grand Rounds
Joslin Diabetes Center, Boston, MA
- 2021 Bringing Diabetic Retinopathy Screening Closer to All: Integrating Point of Care Technologies to Improve Patient Outcomes. Research Symposium
Joslin Diabetes Center, Boston, MA

Report of Regional, National and International Invited Teaching and Presentations

Those presentations below sponsored by outside entities are so noted and the sponsors are identified.

Regional (4)

- 2009 Update on the Clinical Trials in Diabetic Retinopathy / Symposium Talk
New England Ophthalmic Photographic Society, Dartmouth, NH
- 2010 The Joslin Vision Network: Expanding the Boundaries of Diabetes Eye Care / Endocrinology Grand Rounds
Boston Medical Center, Boston ,MA
- 2011 Evolving Concepts in the Diagnosis and Treatment of Diabetic Retinal Disease / Invited Talk
Massachusetts Society of Optometry, Boston, MA.
- 2019 Telemedicine for Diabetic Retinal Disease: Expanding the Boundaries of Evidence-Based Eye Care. /Invited Talk
New England Ophthalmological Society, Boston, MA
- 2021 Biomarkers for Progression in Diabetic Retinopathy: Expanding Personalized Medicine through Integration of Artificial Intelligence with Electronic Health Records
Annual Massachusetts Eye and Ear Infirmary Fellow Course, Boston, MA.
Faculty Mentor to Cris Jacoba (Retina Fellow, Joslin Diabetes Center)

National (32, United States)

- 2008 Pars plana vitrectomy, phacoemulsification and intraocular lens implantation in diabetic patients: Comparing outcomes of combined surgery versus pars plana vitrectomy alone. / Paper Presentation (abstract)
Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Fort Lauderdale, FL
- 2009 Joslin Vision Network: Pediatric Diabetes Ocular Telemedicine Program / Paper Presentation (abstract)
Mid-Year Meeting of the American Telemedicine Association, Indian Wells, CA
- 2010 The Joslin Vision Network: Expanding the Boundaries of Diabetes Eye Care / Plenary Talk
ARVO – Diabetic Retinopathy Summer Symposium, Bethesda, MD

- 2011 Diabetic Retinopathy and Preservation of Vision Among Joslin Diabetes Center Patients / Paper Presentation (abstract)
ARVO Annual Meeting, Fort Lauderdale, FL
- 2011 Awareness of Retinopathy and Timeliness of Follow-up Among Diabetes Patients / Paper Presentation (abstract) Annual Meeting of the American Telemedicine Association, San Jose, CA
- 2012 Ocular Telehealth Programs and Initiatives: An Overview / Instructional Course
American Telemedicine Association Annual Meeting 2012, San Jose CA.
- 2012 United States Federal Telehealth Programs for Diabetic Retinopathy / Discussion Panel
American Telemedicine Association Annual Meeting 2012, San Jose CA.
- 2012 Diabetes Diagnosis & Management 2012: Diabetic Retinopathy: A Current Approach to Diagnosis and Treatment / Instructional Course
Endocrine Society Annual Meeting, Houston, TX
- 2013, 2014 Telehealth Methods for Eye Disease: Focus on Diabetic Retinopathy, Glaucoma and Retinopathy of Prematurity / Instructional Course
ARVO Annual Meeting, Seattle, WA, Orlando, FL
- 2013 Peripheral Diabetic Retinal Lesions Identified on Ultrawide Field (UWF) Imaging May Predict 3-Year Diabetic Retinopathy Progression / Paper Presentation (abstract)
ARVO Annual Meeting, Seattle, WA
- 2013 Practical Considerations for Telemedicine Diabetic Retinopathy Screening / Instructional Course
AAO Annual Meeting, New Orleans, LA
- 2014 Point of Care Evaluation of Diabetic Retinopathy at the Time of Retinal Imaging / Paper Presentation (abstract)
Annual Meeting of the American Telemedicine Association, Baltimore, MA
- 2014 Severity and Extent of Retinal Lesions Outside ETDRS Fields as Identified on Ultrawide Field Images (UWF) Predicts Increased Risk of DR Progression / Paper on Demand (abstract)
American Society of Retina Specialists Annual Meeting, San Diego, CA
- 2014 Practical Considerations for Telemedicine Diabetic Retinopathy Screening / Instructional Course
AAO Annual Meeting, Chicago, IL
- 2014 Evaluating Ultrawide Field Retinal Images for Diabetic Retinopathy, Winter Meeting, Diabetic Retinopathy Clinical Research Network, Tampa, FL
- 2015 Diabetic Retinopathy Severity and Predominantly Peripheral Lesions are Associated with Nonperfusion on Ultrawide Field Angiography
ARVO Annual Meeting, Denver, CO
- 2015 Measuring Quality Assurance in Ocular Telehealth Programs: Joslin Vision Network

American Telemedicine Association Annual Meeting 2015, Los Angeles, CA

- 2015 Telemedicine in DR: Maximizing real world outcomes.
ARVO Conference: Diabetic Retinopathy – Battling the Global Epidemic, Bethesda, MD
- 2015 Improving Outcomes in Teleophthalmology Programs for Diabetic Retinopathy
Methods to Improve Imaging and Image Evaluation
Instructional Course, AAO Annual Meeting, Las Vegas, NV
- 2016 The role of quality assurance in improving outcomes for ocular telemedicine programs for diabetic retinopathy
Instructional Course: Association for Research in Vision and Ophthalmology, Annual Meeting, Seattle, WA
- 2017 Deficits in Retinopathy Self-Awareness and Timeliness of Eye Care Follow-up Over 6 Years among Diabetic Patients.
Annual Meeting of American Telemedicine Association 2017. Orlando, FL, USA
- 2017 Hemorrhages and/or Microaneurysm Distribution and Counts Identified on Ultrawide Field Imaging and the Risk of Diabetic Retinopathy Progression Over 4 Years.
ARVO Annual Meeting. 2017. Baltimore, MD, USA
- 2018 Presence of Predominantly Peripheral Diabetic Retinopathy Lesions Predict Increased Risk of Retinopathy Progression Over 4 Years in a Real-world Teleophthalmology Program.
Macula Society Annual Meeting 2018. Beverly Hill, CA
- 2018 Automated Hemorrhage and Microaneurysm Counts on Ultrawide Field Images Predict Increased Risk of Diabetic Retinopathy Progression Over 4 Years.
ARVO Annual Meeting 2018. Honolulu, HI
- 2018 Panelist Special Interest Group - Telemedicine and Artificial Intelligence using Deep Learning Systems to Screen and Monitor Diabetic Retinopathy, Glaucoma and Age-related Macular Degeneration using Different Imaging Modalities
ARVO Annual Meeting 2018. Honolulu, HI
- 2019 Systemic Association of Predominantly Peripheral Diabetic Retinopathy Lesions Identified on Ultrawide Field Retinal Imaging.
ARVO Annual Meeting 2019. Vancouver, BC, Canada
- 2019 Comparison of Non-Perfusion and Ultrawide Diabetic Retinopathy Severity. DRCR Retina Network Symposium.
ARVO Annual Meeting 2019 Vancouver, BC, Canada
- 2020 Impact of Visible Retinal Area on Diabetic Retinopathy Severity and Detection of Predominantly Peripheral Lesions when Using Ultrawide Field Imaging
ARVO Annual Meeting 2020, Baltimore, MD (This presentation was scheduled, but then cancelled because of a Covid-19 travel/meeting ban.)
- 2021 Peripheral Diabetic Retinopathy (DR) Lesions on Ultrawide-field Fundus Images and Risk of DR Worsening Over Time (Protocol AA) Results: UWF-FA Nonperfusion and Risk of DR Worsening. DRCR Retina Network Summer Meeting, Tampa, FL.

National (70, Philippines)

- 2005 Progression of Diabetic Retinopathy after Phacoemulsification / Free Paper (abstract)
Philippine Society of Cataract and Refractive Surgery, Mid-Year Meeting, Manila, Philippines
- 2007 Evidence-Based Ophthalmology / Board Review Course
International Eye Institute, St. Luke's Medical Center, Quezon City, Philippines
- 2009 Update on the Clinical Trials in Diabetic Retinopathy and Macular Edema / Invited Talk
Asian Eye Institute, Makati City, Philippines
- 2009 Update on the Clinical Trials in Diabetic Retinopathy and Macular Edema / Grand Rounds
Sentro Oftalmolgico Jose Rizal, Philippine General Hospital, Manila, Philippines
- 2009 Update on the Clinical Trials in Diabetic Retinopathy and Macular Edema / Grand Rounds
International Eye Institute, St Luke's Medical Center, Quezon City, Philippines
- 2009 Update on the Clinical Trials in Diabetic Retinopathy and Macular Edema / Grand Rounds
Department of Ophthalmology, The Medical City, Pasig City, Philippines
- 2010 Raising the bar in ophthalmic therapy: Anti-angiogenic Therapies for Diabetic Retinopathy and Other Retinal Diseases / Plenary Talk
2nd International Eye Symposium, St. Luke Medical Center, Bonifacio, Global City, Philippines
- 2011 Difference in Ophthalmic Outcomes in Type 1 compared to Type 2 Diabetes/ Grand Rounds
Sentro Oftalmolgico Jose Rizal, Philippine General Hospital, Manila, Philippines
- 2011 Telemedicine: Moving Beyond Retinal Screening / Plenary Talk
Philippine Academy of Ophthalmology Annual Meeting, Manila, Philippines
- 2011 Visual Outcomes and Risk Factors in Diabetic Patients at the Joslin Diabetes Center / Plenary Talk
Philippine Academy of Ophthalmology Annual Meeting, Manila, Philippines
- 2011 AntiVEGF for Diabetic Macular Edema / Plenary Talk
Philippine Academy of Ophthalmology Annual Meeting, Manila, Philippines
- 2012 Telemedicine Expanding the boundaries of evidence based medicine / Grand Rounds
Department of Ophthalmology, The Medical City, Philippines
- 2012 Barriers to Diabetes Eye Care / Endocrinology Grand Rounds
Section of Endocrinology, Department of Medicine, The Medical City, Philippines
- 2012 Longterm outcomes of the Early Treatment Diabetic Retinopathy Study / Grand Rounds
International Eye Institute, St Lukes Medical Center, Quezon City, Philippines
- 2012 Evolving Treatments of Diabetic Retinal Disease / Plenary Talk

- EyeTalk Ophthalmology Symposium 2012, St Lukes' Medical Center. International Eye Institute, Bonifacio Global City, Philippines
- 2012 Advances in Imaging for Diabetic Retinal Disease / Plenary Talk
EyeTalk Ophthalmology Symposium 2012, St Lukes' Medical Center. International Eye Institute, Bonifacio Global City, Philippines
- 2012 Telemedicine for Diabetic Retinal Disease, Medical Grand Rounds
Quezon City, Philippines
- 2012 Telemedicine for Diabetic Retinal Disease / Plenary Talk
Philippine Academy of Ophthalmology, Annual Meeting, Manila, Philippines
- 2012 Ultrawide Field Imaging for Diabetic Retinal Disease / Plenary Talk
Philippine Academy of Ophthalmology, Annual Meeting, Manila, Philippines
- 2013 Challenges in the Treatment of Diabetic Retinopathy in the Philippines / Symposium Talk
3rd International Eye Symposium: Shifting Gears in Eye Care. St. Luke's Medical Center Global City, Taguig City, Manila, Philippines
- 2013 Retinal Imaging and Telemedicine for Diabetic Retinal Disease / Plenary Talk
Annual Meeting of the Philippine Academy of Ophthalmology, Manila Philippines
- 2014 Photographic Diabetic Retinopathy Evaluation / Grand Rounds
Sentro Oftalmoligico Jose Rizal, Philippine General Hospital, Manila, Philippines
- 2014 Ultrawide field retinal imaging: To the edge of the retina / Post Graduate Course
Department of Ophthalmology, Manila Doctors Hospital, Manila, Philippines
- 2014 Advances in retinal imaging and telemedicine / Post Graduate Course
Department of Ophthalmology, Manila Doctors Hospital, Manila, Philippines
- 2015 Research Initiatives at the Teleophthalmology and Image Reading Center, Philippine Eye Research Institute, Grand Rounds, Sentro Oftalmoligico Jose Rizal, Philippine General Hospital, Manila, Philippines
- 2015 Cases in the Use of Vascular Endothelial Growth Factor Inhibitors
Retina Academy, Vitreoretinal Society of the Philippines, Pasig City, Philippines
- 2015 Hydroxychloroquine-Induced Retinal Toxicity, Retina Service Meeting, St. Lukes Medical Center, Bonifacio Global City, Philippines
- 2015 AntiVEGF for Proliferative Diabetic Retinopathy. Post Graduate Course
Department of Ophthalmology, The Medical City, Pasig City, Philippines
- 2015 AntiVEGF Treatment for Proliferative Diabetic Retinopathy: The Treated Eye of Tomorrow
Annual Meeting of the Philippine Academy of Ophthalmology, Philippines
- 2015 Pathophysiology of Diabetic Retinopathy and Implications for Systemic Therapeutic Approaches
Annual Meeting of the Philippine Academy of Ophthalmology, Philippines

- 2016 Pathophysiology of Diabetic Retinopathy and Implications for Systemic Therapeutic Approaches
TrailBlazers Meeting, Makati City, Philippines
- 2016 Grand Rounds: RetinaWIDE Markers for Diabetic Retinal Disease
Sentro Oftalmolgico Jose Rizal, Philippine General Hospital, Manila, Philippines
- 2016 Grand Rounds: Fighting Diabetes Blindness
St Lukes Medical Center, Bonifacio Global City, Taguig, Philippines
- 2016 Systemic Considerations in the Management of Diabetic Retinal Disease
Annual Meeting of American Association of Clinical Endocrinologists (Philippine Chapter), Dumaguete, Philippines
- 2016 DRCR.net Protocol T 2 year results at Retina Now and in the Future,
Vitreoetina Society of the Philippines, Makati, Philippines
- 2016 Diabetic Retinopathy: Role of the Endocrinologist in the Optimal Care Model –
Strategies for Prevention and Risk Reduction: Keep an Eye on Diabetes.
Vitreoetina Society of the Philippines, Cebu City, Philippines
- 2016 Imaging for Diabetic Macular Edema at Philippine Academy of Ophthalmology, Pasay
City, Philippines
- 2016 Ultrawide Field Imaging for Diabetic Retinopathy
Philippine Academy of Ophthalmology, Pasay City, Philippines
- 2016 RCR.net Protocols I, S,T
Philippine Academy of Ophthalmology, Pasay City, Philippines
- 2017 AntiVEGF Treatment for Diabetic Retinal Disease: The Treated Eye of Tomorrow
Annual CME Course, The Medical City, Philippines
- 2017 Diabetic Retinopathy: Making Sense of Landmark Clinical Trials
Annual CME Course, The Medical City, Philippines
- 2017 Wide Markers for Diabetic Retinopathy
Eye on the Future, St. Lukes Medical Center Post Graduate Course, Global City,
Philippines
- 2017 Fighting Diabetes Blindness Through Advanced Retinal Imaging
St. Lukes Medical Center Grand Rounds, Global City, Philippines
- 2017 Fighting Diabetes Blindness
University of the Philippines 2017 Webinar Series
- 2017 Ultrawide Field Retinal Imaging For Diabetic Retinopathy: The Journey from the Edge
and Back. Grand Rounds, Cardinal Santos Medical Center, San Juan, Philippines
- 2017 Ultrawide Field Retinal Imaging for Diabetic Retinopathy
Annual Meeting of the Philippine Academy of Ophthalmology, Philippines
- 2017 Imaging for Retinal Vascular Disease

Annual Meeting of the Philippine Academy of Ophthalmology, Philippines

- 2018 New Generation Multi-modality Imaging in Diabetic Retinopathy. 1st Eye and Vision Institute International Symposium, Pasig City, Philippines
- 2018 Vitreous Hemorrhage: AntiVEGF Injections? 5th International Eye Symposium: Shifting Gears in Eye Care. St. Luke's Medical Center Global City, Taguig City, Manila, Philippines
- 2018 Impact of Artificial Intelligence on Diabetic Retinopathy Evaluation. Punongbayan & Araullo Grant Thornton, Business Forum, Makati City, Philippines
- 2018 Ultrawide Field Retinal Imaging For Diabetic Retinopathy: The Journey to the Edge and Back / Grand Rounds. St. Luke's Medical Center, Quezon City, Manila, Philippines
- 2019 Impact of Artificial Intelligence on Diabetic Retinopathy Evaluation. 2nd Eye and Vision Institute International Symposium, Pasig City, Philippines
- 2019 Wide Field Retinal Imaging for Retinal Vein Occlusions. Vitreoretina Society of the Philippines 20th Anniversary Scientific Meeting, Philippines
- 2019 Optimal Treatment for PDR: Old School PRP, AntiVEGF alone or Combination. Vitreoretina Society of the Philippines 20th Anniversary Scientific Meeting, Philippines
- 2019 Impact of Artificial Intelligence on Diabetic Retinopathy Evaluation. Vitreoretina Society of the Philippines 20th Anniversary Scientific Meeting, Philippines
- 2019 The Best of the Vitreoretinal Society Symposium: Impact of Artificial Intelligence on Diabetic Retinopathy Evaluation. Annual Meeting of the Philippine Academy of Ophthalmology
- 2020 Hydroxychloroquine-Induced Retinal Toxicity. Philippine Academy of Ophthalmology - VRSP Lock Down Lecture Series
- 2020 AI in Ophthalmology: Current Status and New Opportunity During COVID-19 Pandemic. Philippine Academy of Ophthalmology CCEO Distance Learning Program
- 2020 Artificial Intelligence and Deep Learning in Diabetic Retinopathy. EyeTV: Innovations In Diabetic Retinopathy Diagnostics and Managements. The Medical City, Philippines. Virtual Symposium
- 2020 Material Make-up, Performance Mechanism, and Technical Standards of Eye Protection and Goggles during the Science Policy Forum on "Philippine PPE Pandemic Preparedness" attended by the Philippine Vice President Maria Leonor "Leni" Gerona Robredo.
- 2020 Telemedicine Initiatives for Diabetic Retinopathy Evaluation. Healthscape PH Telemedicine: Accelerating Access of Filipinos To Quality Universal Health Care".
- 2021 Changing the Landscape of Diabetic Retinopathy Screening: Handheld Retinal Imaging Devices. Vitreoretina Society of the Philippines, 1st Quarterly Meeting.

- 2021 Ultrawide Field Fluorescein Angiography: What Lies Unseen? Vitreoretina Society of the Philippines, 3rd Quarterly Meeting.
- 2021 Preventing Diabetic Retinopathy Development and Progression. Novartis Philippines CME activity.
- 2021 Changing the Landscape of Diabetic Retinopathy Screening
Newton Aghan Grant Reception. British Embassy Manila Virtual Event
- 2021 OPTIMIZING PATIENT CARE for RVO in 2021:
How Aflibercept (Eylea) Can Benefit Patients in the New Normal.
CME Activity (Bayer Philippines)
- 2021 Interesting Case Series: Seeing Yellow Not Red. Annual Meeting of Philippine Academy of Ophthalmology 2021.
- 2021 Community Ophthalmology Symposium: Identifying Undetected Prevalent Disease: The First Pass Effect in Diabetic Retinopathy Screening Programs. Annual Meeting of Philippine Academy of Ophthalmology 2021.
- 2021 Ultrawide Field Retinal Imaging for Diabetic Retinopathy: The Journey to the Edge and Back. Makati Medical Center Grand Rounds

International (41 total, excluding the Philippines)

Those presentations below sponsored by outside entities are so noted and the sponsors are identified.

- 2010 Temas Relevantes en el Manejo Del Paciente con Diabetes: Joslin Vision Network: Venezuela Program Detecting and Monitoring of Retinal Changes in Pediatric Diabetes Populations / Curso Internacional: Actualización en Diabetes Mellitus Servicio de Endocrinología y Diabetes del Centro Médico Docente la Trinidad, Caracas, Venezuela (Fundacion MMG)
- 2012 Visual Outcomes and Risk Factors in Diabetes Patients at the Joslin Diabetes Center / Symposium Talk
International Symposium of Diabetic Retinopathy and Retinal Vascular Disease, Aravind Eye Care System, Tamil Nadu, India
- 2012 Systemic Risk Factors for Diabetic Retinal Disease
International Symposium of Diabetic Retinopathy and Retinal Vascular Disease, Aravind Eye Care System, Tamil Nadu, India
- 2012 Curso Internacional: Actualización en Diabetes Mellitus – “Telemedicine for Diabetic Eye Disease: Moving Towards the Preservation of Vision” / Plenary Talk
Servicio de Endocrinología y Diabetes del Centro Médico Docente la Trinidad, Caracas Venezuela (Fundacion MMG)
- 2012 Retinal Imaging for Telemedicine and Diabetic Retinal Disease / Grand Rounds
Department of Ophthalmology, Ospital Luciano Domingo, Caracas, Venezuela
- 2012 An Expanding Horizon: Telemedicine for Diabetic Retinopathy / Plenary Talk
World Leadership Summit on Telemedicine 2012, Boston, MA.
- 2012 Lesion Distribution in Mydriatic Ultrawide field Retinal Imaging and Agreement with Dilated ETDRS Photography / Free Paper (abstract)
8th International Symposium of Ophthalmology, Hong Kong, China

- 2013 Novel Retinal Imaging for Teleophthalmology in Emerging Diabetes Population / Symposium talk
Inaugural Teleophthalmology Videoconference, The Medical City, Philippines with the Joslin Diabetes Center, Boston, MA, USA
- 2014 Evidence-Based Approach to the Diagnosis and Management of DR and DME: AntiVEGF Agents / Plenary Talk
World Ophthalmology Congress, Tokyo, Japan
- 2014 Telemedicine and Diabetic Retinopathy in the Philippines / Symposium Talk
ASEAN Ophthalmology Society, Inaugural Meeting, Bangkok, Thailand
- 2015 Diabetic Retinopathy (DR) Severity and Predominantly Peripheral DR Lesions are Associated with Nonperfusion on Ultrawide Field Angiography
Asia Pacific Academy of Ophthalmology Annual Meeting Leadership Development Program, Tokyo, Japan
- 2015 Diabetic Retinopathy Severity and Predominantly Peripheral DR Lesions are Associated with Nonperfusion on Ultrawide Field Angiography
American Society of Retinal Specialist, Annual Meeting, Vienna, Austria
- 2015 Improving Outcomes in Teleophthalmology Programs for Diabetic Retinopathy
Diabetic Retinopathy Screening Course, EURETINA, Nice, France
- 2016 Advances in Diabetic Retinopathy Management and Teleretinal Evaluation
6th Emirate Diabetes and Endocrine Congress, Dubai, UAE
- 2016 Diabetic Retinal Disease: Shifting Away from Late Stage Treatment
International Diabetes Federation Western Pacific, Taipei, Taiwan
- 2016 Challenges for Implementing Teleophthalmology Programs for Diabetic Retinopathy
Nordic Ophthalmology Congress 2016, Aarhus, Denmark
- 2016 Improving Outcomes in Teleophthalmology Programs for Diabetic Retinopathy
Diabetic Retinopathy Screening Course, EURETINA, Copenhagen, Denmark
- 2016 RetinaWide Markers for Diabetic Retinopathy
Asia Pacific Vitreoretinal Society Annual Meeting, Bangkok, Thailand
- 2016 Ultrawide Field Fluorescein Angiography for Diabetic Retinopathy
Asia Pacific Vitreoretinal Society Annual Meeting, Bangkok, Thailand
- 2017 Role of Calcium Dobesilate in Diabetic Retinopathy
Korean Retina Society Annual Meeting 2017. Seoul, South Korea
- 2017 Significance of H/Ma counts and Retinopathy Severity in Evaluating Calcium Dobelisate Data
Grand Rounds, Seoul National University Bundang Hospital. Bundang, South Korea
- 2017 DR Screening Programs Around the World - Success Factors: Diabetic retinopathy screening programs in the US
Diabetic Retinopathy Screening Course, EURETINA, Barcelona, Spain

- 2017 Retinal Imaging in the 21st Century: Ultrawide Field Retinal Image
Asia Pacific Vitreoretinal Society Annual Meeting, Kuala Lumpur, Malaysia
- 2018 Ultrawide Field Imaging For Diabetic Retinopathy: RetinaWide Markers
Aravind Diabetic Retinopathy Symposium, Tamil Nadu, India
- 2018 Ultrawide Field Fluorescein Angiography: What Lies Unseen? Retinal Nonperfusion
and Vessel Density
Aravind Diabetic Retinopathy Symposium, Tamil Nadu, India
- 2018 Wide-field imaging typically should be obtained in diabetic retinopathy?
Asia and Australia - Controversies in Ophthalmology, Manila, Philippines
- 2018 Wide Field Imaging for Retinal Vascular Diseases
Annual Meeting of the Asia Pacific Vitreoretinal Society, Seoul Korea
- 2018 Potential Benefits of Ultrawide Field Imaging in Diabetic Retinopathy (Protocol AA)
Annual Meeting of the Asia Pacific Vitreoretinal Society, Seoul Korea
- 2019 Ultrawide Field Fluorescein Angiography: What Lies Unseen?
10 Congreso Anual de Oftalmología FUNDONAL-SCO, Bogota, Colombia
- 2019 Impact of Ultrawide Field Imaging on the Teleophthalmology Programs
10 Congreso Anual de Oftalmología FUNDONAL-SCO, Bogota, Colombia
- 2019 Ultrawide Field Imaging For Diabetic Retinopathy: RetinaWide Markers
10 Congreso Anual de Oftalmología FUNDONAL-SCO, Bogota, Colombia
- 2019 Evaluating Ultrawide Field Retinal Images for Diabetic Retinopathy: Pearls and Pitfalls
10 Congreso Anual de Oftalmología FUNDONAL-SCO, Bogota, Colombia
- 2019 The Edge of the Retina and the Air We Breathe: Ultrawide Field Imaging and Retinal
Oximetry
10 Congreso Anual de Oftalmología FUNDONAL-SCO
- 2019 Protocol AA: Assessment of Fluorescein Angiography Nonperfusion and Diabetic
Retinopathy Severity
- 2020 Telemedicine for Diabetic Retinal Disease: Expanding the Boundaries of Evidence-
Based Eye Care.
Pan-american Academy of Ophthalmology Webinar
- 2021 Basic and Translational Research in Diabetic Eye Complications.
Diabetic Retinopathy - Seeing the Big Picture Symposium. OM Pharma (Virtual).
- 2021 Importance of Ultrawide field imaging: Findings from Clinical Research at Joslin
Diabetes Center.
Ultrawide Field Imaging Scientific Meeting China. (Virtual) Optos plc.
- 2021 Choosing the Most Appropriate Camera for your Diabetic Eye Pathway. Developing a
Virtual Clinic for Diabetic Eye Disease.
EURETINA 2021 Instructional Course. Virtual Meeting

- 2021 Ultrawide Field Angiography: What Lies Unseen?
Annual Meeting of European Association For The Study Of Diabetes Eye Complications Study Group (EASdec), Odense, Denmark
- 2021 Preventing Blindness in Patients with Diabetes
AAO Communities Middle East (Virtual/ In-Person Meeting in Dubai, UAE)
- 2021 How to improve access to diabetic retinopathy screening with AI and handheld fundus camera. Retinopathy Screening Closer for All: Integrating Point of Care Artificial Intelligence.
Virtual Webinar (Optomed)

Report of Clinical Activities and Innovations

Current Licensure and Certification:

- 1997- Pharmacist License, Philippines
- 2002- Medical License, Philippines
- 2006- Diplomate, Philippine Board of Ophthalmology
- 2007- Diplomate, Philippine Board of Ophthalmology
Educational Commission on Foreign Medical Graduates (ECFMG) Certification
- 2007-2009 Limited Medical License - Board of Registration in Medicine, Commonwealth of Massachusetts
- 2009- Full Medical License -- Board of Registration in Medicine, Commonwealth of Massachusetts
- 2018- Diplomate, American Board of Ophthalmology (certified through the pilot program for internationally trained ophthalmologists)

Practice Activities:

- | | | | |
|-------|---|--|---------|
| 2009- | Academic
Ophthalmology
Practice with focus on
diabetic retinal
diseases | Beetham Eye Institute, Joslin
Diabetes Center, Boston, MA | 60% FTE |
| 2009- | Teleophthalmology
Program for Diabetic
Retinopathy | Beetham Eye Institute, Joslin
Diabetes Center, Boston, MA | 40% FTE |

Clinical Innovations:

- | | |
|--|--|
| Intraocular
Pharmacokinetics of
Peribulbar
Triamcinolone
Acetonide (2007-
2012) | In collaboration with the Mayo Clinic and BIDMC, I reported on the intraocular pharmacokinetics of peribulbar triamcinolone acetonide. These results established the intraocular and vitreous penetration of triamcinolone in humans providing pharmacologic evidence for the treatment of ocular inflammatory conditions through transseptal and subtenons injection. The results demonstrate the pharmacokinetics of peribulbar administration and provides the postulated mechanism of ocular penetration of triamcinolone acetonide. These findings suggest that this route of administration may be a |
|--|--|

beneficial treatment for various forms of ocular inflammation and delivered by a less invasive method.

Combined cataract and vitrectomy surgery outcomes in diabetes (2009-2014)

I have led the efforts to investigate outcomes related to diabetic retinopathy and cataract surgery, combined retinal surgery and small incision cataract surgery among patients with diabetes. This work is one of the largest reports on the outcomes on combined cataract surgery and vitrectomy in diabetic eyes and provides evidence of the effectiveness of these interventions. The results have shown that performing combined cataract and retinal surgery will not expose the patient to an increased surgical risk. In addition, visual recovery is hastened and there is a decrease in the number of operations the patient must undergo. This provides data to support an approach that reduces surgical procedures while enhancing visual recovery and not inducing significant risk in this population at risk of numerous complications.

Clinical leadership and development of the teleophthalmology program for diabetic retinopathy at the Joslin Diabetes Center and at collaborating sites (2009 -)

I have been deeply involved with the Joslin Vision Network (JVN), an innovative telemedicine diabetes eye care program developed at Joslin and now distributed directly or as the foundation for subsequent programs in over 100 sites worldwide. My experience in the full range of telemedicine programs, from patient evaluation, image capture, image grading and reporting has allowed me to provide leadership and valuable insight on the direction of the JVN programs. The JVN has been successfully deployed to more than 97 locations in 25 states across the United States Indian Health Service. The telemedicine program for diabetic retinopathy for the United States Veterans Administration, deployed initially as a JVN program, currently provides retinal assessment for diabetic retinopathy to more than 100,000 veterans per year, and the VA program is modeled on the JVN initially deployed in the VA. The JVN has also been deployed successfully at other locations within the United States Department of Defense. Currently, the JVN cares for 4,000 patients per year within the Harvard Medical System at Joslin Diabetes Center, Boston, MA. I have been instrumental in developing clinical protocols that are currently being used in the management of diabetic populations. This approach has allowed the JVN to provide clinical decision support mechanisms and the generation of automated ophthalmic treatment algorithms for patients with diabetes. The protocol employs current JVN technology to provide remote telemedicine care to these underserved patients in the Philippines, incorporating the current evidence-based eye care program that reduces the risk of severe visual loss to less than 5%.

Ultrawide field retinal imaging for diabetic retinopathy: teleophthalmology applications (2009 -)

The publication on the validation study of ultrawide field retinal imaging for diabetic retinopathy was cited by the American Academy of Ophthalmology as one of the top practice changing publications in September 2012 and 2015. This study supported the adoption of the technology by the Joslin Vision Network of the Joslin Diabetes Center and Indian Health Service. The transition to ultrawide field imaging has resulted in a reduction in the ungradable rate through undilated pupils by 75% with a present ungradable rate of less than 3%. Furthermore, this approach has reduced the time to evaluate images by 25%, increased the identification of retinopathy by 20% and increased the identification of vision threatening retinopathy by 40%.

Ultrawide field retinal imaging for diabetic retinopathy: clinical applications (2009 -)

I have led seminal publications on the role of wide field imaging, describing its ability to detect posterior and peripheral diabetic retinopathy, and enhance identification of patients at exceptional risk for retinopathy progression. My work on the impact of ultrawide field imaging on the distribution and severity

of diabetic retinopathy has been published in the journal Ophthalmology and was the cover features in EyeNet. This was the first study to identify and describe what is now known as predominantly peripheral lesions (PPL) of diabetic retinopathy. The presence of PPL has been shown to be associated with a 3.2-fold and 4.7-fold increased risk for diabetic retinopathy progression and onset of proliferative diabetic retinopathy. This work on the peripheral diabetic retinopathy lesions identified on wide field retinal imaging published in the journal Ophthalmology has been the impetus for the conduction of a nationwide clinical trial by National Eye Institute funded Diabetic Retinopathy Clinical Research Network (DRCR.net)

Automated Retinal Imaging Systems for diabetic retinopathy screening programs (2010 – 2012)

My work on retinal imaging systems that automate the acquisition of multiple retinal fields has demonstrated the innovative use of automated imaging systems that provide a comparable alternative to the labor and resource intensive retinal photography.

Low-light nonmydriatic retinal imaging for diabetic retinopathy screening programs (2010-2012)

I have played a key role in the evaluation of a variety of nonmydriatic fundus cameras for telemedicine for diabetic retinopathy. My work on low-light adapted retinal imaging significantly reduced the ungradable rate of telemedicine programs by 25%.

Point of care retinal image evaluation in diabetic retinopathy screening programs (2012-2015)

My work on methods to improve the work flow efficiency and streamline the process of evaluating retinal images has demonstrated that appropriately trained retinal imagers following a clearly defined imaging and grading protocol, can accurately evaluate retinal images with a high degree of sensitivity and specificity for the presence of sight threatening retinopathy and inadequate image quality at the time of imaging. The ability to identify ungradable images and detect potentially sight threatening retinopathy facilitates re-acquisition of retinal images during a single imaging encounter and allows prompt referral to appropriate eye care. These benefits would lead to better medical care of these patients, reduced loss of vision, and potential reduced cost.

Point of care Artificial intelligence systems for diabetic retinopathy screening programs (2015 -)

The REACH-DR team that I currently led as the Principal Investigator successfully used artificial intelligence (AI) algorithms for diabetic retinopathy screening in an underserved remote community in Region III of the Philippines. This AI implementation marked the first use of a validated AI algorithm in a clinical setting in ophthalmology in the Philippines. The AI algorithm was used at the point of care to assess image quality and provide immediate counseling to the patients with potentially vision threatening disease. The AI algorithm was also used to assist in image assessment to determine the presence of referable retinopathy, glaucoma and macular degeneration. The accomplishments of the REACH-DR project despite interruptions by the COVID-19 pandemic has been recognized by the governing council of the Philippine Council of Health Research and Development headed by its Director Dr. Jaime Montoya and by Undersecretary Dr. Rowena T. Guevarra of the Department of Science of Technology.

Handheld retinal imaging for diabetic

I have validated multiple retinal handheld retinal imaging devices that play a key role in the evaluation in telemedicine programs for diabetic retinopathy in low resource settings. This findings have shown that when using a

retinopathy screening programs (2018 -) standardized protocol of image acquisition and evaluation, handheld retinal imaging devices are comparable to standard retinal cameras while being more cost-effective in low resource settings. This findings have supported adoption of the imaging devices in various diabetic retinopathy screening programs and in tertiary medical centers to access traditionally hard to reach patient populations.

Report of Education of Patients and Service to the Community

Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.

Activities

- 2005 College of Medicine, University of the Philippines / Lead Ophthalmologist
Ophthalmology Surgical Mission to the Mountain Province, Philippines
- 2006 Department of Ophthalmology and Visual Sciences, Philippine General Hospital /
Coordinating Ophthalmologist
- 2010 Juvenile Diabetes Research Foundation, Canada/Invitee
Workshop for retinal specialists to draft a screening campaign to be implemented in
Southern Ontario
- 2010- Massachusetts Lions / Speaker (16 talks given)

Educational Material for Patients and the Lay Community:

Educational material or curricula developed for non-professional students

- | | | |
|------------|--|---|
| 2010, 2011 | The Joslin Vision Network: Expanding the Evidence-Based Diabetes Eye Care | Lay Lecture at Massachusetts Lions District Meeting |
| 2010 | The Joslin Vision Network: Expanding the Evidence-Based Diabetes Eye Care | Lay Lecture at Massachusetts Lions Joslin Diabetes Center Visit (given twice in 2010) |
| 2014 | To the Edge of the Retina: Changing our view of the diabetic eye through widefield imaging | Lay Lecture at Massachusetts Lions Joslin Diabetes Center Visit |

Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. **Silva PS**, Trio KF, Yap CB, Aguilar RN. Progression of Diabetic Retinopathy after Phacoemulsification: A Meta-Analysis. *Philipp J of Ophthal.* 2005. 30(2) 62-66.
2. Aguilar, RN, **Silva PS**. Globe-sparing Interventions in the Management of Intraocular Retinoblastoma. *Philipp J of Ophthal.* 2005. 30(2) 78-81.
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4. KG Gruezo, **PAS Silva**, PM Khu, RM Valenzuela, YC Ronquillo. Efficacy of intraoperative subconjunctival triamcinolone acetonide as antifibrotic agent in filtration surgery. *Philippine Journal of Ophthalmology* 32 (2), 60-65
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3. Gupta A, **Silva PS**, Cavallerano JD, Tolson AM, Tolls D, Rodriguez J, Morris K, Rodriguez S, Patel B, Sehizadeh M, Thakore K, Sun JK, Aiello LP. Deficits in Retinopathy Self-Awareness and Timeliness of Eye Care Follow-up Over 6 Years among Diabetic Patients. Annual Meeting of the Association for Research in Vision and Ophthalmology 2017.
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30. Salongcay RP, Aquino LAC, Salva CMG, Saunar AV, Alog GP, Rageh A, Sun JK, Peto T, Aiello LP, **Silva PS**. Comparison of Mydriatic and NonMmdriatic Handheld Retinal Imaging with Early Treatment Diabetic Retinopathy Study (ETDRS) 7-Standard Field Photography for Diabetic Retinopathy (DR) and Diabetic Macular Edema (DME). EURETINA 2021.
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Narrative Report

I am a clinician in ophthalmology with the subspecialty of retinal and diabetic eye diseases. My clinical practice involves general ophthalmology and retinal subspecialty care of primarily diabetes patients at the Joslin Diabetes Center. I am internationally recognized as an expert in the fields of ocular telehealth for diabetic retinopathy, ultrawide field (UWF) retinal imaging and electronic medical record review. As chief of telemedicine of the Beetham Eye Institute at the Joslin Diabetes Center, I direct efforts of the Joslin Vision Network (JVN) in Boston, provide support to over 90 clinical sites through the Indian Health Service, and develop collaborative efforts with both industry and clinical programs internationally. Outcomes data derived from the JVN have led to key publications describing novel approaches to telemedicine and better understanding of telemedicine outcomes. These contributions include elucidating the role of imager evaluation at the time of telemedicine imaging and the evaluation of various novel automated and low light imaging systems. Concurrently, I direct telemedicine and retinal imaging research programs that have led to collaborative efforts in the Philippines with Joslin and the Diabetic Retinopathy Research Network (DRCR.net). Presently, the Philippine reading center is prospectively evaluating UWF angiograms and retrospectively evaluating optical coherence tomography scans from clinical trials conducted by DRCR.net.

My publications on UWF imaging have described its ability to detect posterior and peripheral diabetic retinopathy, its potential to improve efficiency of telemedicine programs and determine patients at exceptional risk for retinopathy progression. These papers have been recognized as one of the top practice changing publications in September 2012 by the American Academy of Ophthalmology and again in April 2015. My work has allowed the adoption of the UWF imaging technology with a reduction in the ungradable rate through undilated pupils by 75% with a present ungradable rate of less than 3%. This approach has reduced image evaluation time by 25%, increased the identification of retinopathy by 20% and increased the identification of sight-threatening retinopathy by 40%. This was the first study to identify and describe what is now known as predominantly peripheral lesions (PPL) of diabetic retinopathy. The presence of PPL has been shown to be associated with a 3.2-fold and 4.7-fold increased risk for diabetic retinopathy progression and onset of proliferative diabetic retinopathy. This work on the peripheral diabetic retinopathy lesions identified on wide field retinal imaging published in the journal *Ophthalmology* has been the impetus for the conduction of a nationwide clinical trial by National Eye Institute funded Diabetic Retinopathy Clinical Research Network (DRCR.net).

I have contributed 122 scientific publications with 44 original research articles (24 as either first or last author), 19 study group publications, 35 review articles, 7 clinical guidelines, 15 book chapters, 1 letter to the editor and 1 book. My work and efforts have been recognized with more than 21 national and international awards that include Young Clinician Award from the Center for Integration of Medicine and Innovative Technology and Eleanor and Miles Shore 50th Anniversary Fellowship Program for Scholars in Medicine, HMS, and the Achievement Award from the American Academy of Ophthalmology. I have been awarded by the Newton-Agham Grant that is jointly funded by UK Newton Fund and the Philippine Department of Science and Technology to develop cost-effective solutions for diabetic retinopathy evaluation in the Philippines.

The REACH-DR team that I currently led as the Principal Investigator successfully deployed artificial intelligence (AI) algorithms for diabetic retinopathy screening in an underserved remote community in Region III of the Philippines. This AI implementation marked the first use of a validated AI algorithm in a clinical setting in ophthalmology in the Philippines. The AI algorithm was used at the point of care to assess image quality and provide immediate counseling to the patients with

potentially vision threatening disease. The AI algorithm was also used to assist in image assessment to determine the presence of referable retinopathy, glaucoma and macular degeneration. The accomplishments of the REACH-DR project despite interruptions by the COVID-19 pandemic has been recognized by the governing council of the Philippine Council of Health Research and Development headed by its Director Dr. Jaime Montoya and by Undersecretary Dr. Rowena T. Guevarra of the Department of Science of Technology, Republic of the Philippines.

My work on the application of teleophthalmology programs for diabetic retinopathy in low resource settings has focused primarily on methods to improve the work flow efficiency and low-cost retinal imaging devices. I have described processes of evaluating retinal images by appropriately trained retinal imagers following a clearly defined imaging and grading protocol that can accurately evaluate retinal images with a high degree of sensitivity and specificity for the presence of sight threatening retinopathy and inadequate image quality at the time of imaging. This ability to identify ungradable images and detect potentially sight threatening retinopathy facilitates re-acquisition of retinal images during a single imaging encounter and allows prompt referral to appropriate eye care. Similarly, I have validated multiple retinal handheld retinal imaging devices that play a key role in the evaluation in telemedicine programs for diabetic retinopathy in low resource settings. These findings have shown that when using a standardized protocol of image acquisition and evaluation, handheld retinal imaging devices are comparable to standard retinal cameras while being more cost-effective in low resource settings. These benefits would lead to better medical care of these patients, reduced loss of vision, and reduced cost.

Since 2012, I have served as associate retina fellowship program director at Joslin and have been directly involved in the education of 25 retina fellows within the Harvard Ophthalmology System. I have given the annual didactic lecture on diabetic retinopathy to endocrinology fellows at the Joslin Diabetes Center. Both retina and endocrinology fellows within the Harvard system have routinely rotated at my clinics. I have mentored a HMS master's student for which we have obtained grant funding from the HMS Center for Global Health Delivery. In addition to this, I have mentored multiple NIDDK funded medical students and hosted medical students on elective rotations from the University of the Philippines. I have served as faculty in the HMS Patient-Doctor II course at HMS. I have conducted instructional courses on diabetic retinopathy at the Endocrine Society meeting in 2012; Diabetic Retinopathy Screening at the Annual Meeting of the European Society of Retina Specialists in 2015, 2016, 2017, 2021; and on Ocular Telehealth at the American Telemedicine Association meeting in at the 2012, 2013, 2015, Asia-Pacific Academy of Ophthalmology in 2015, Association for Research in Vision and Ophthalmology in 2013, 2014, and American Academy of Ophthalmology in 2013, 2014.

My administrative emphasis has been on fostering greater clinical innovation and the development of infrastructure that will facilitate and nurture such innovation.