The Importance of Neuro-Ophthalmology Subspecialty in the Current Healthcare Landscape

Franz Marie Cruz, MD[1,2,3]

[1]Peregrine Eye and Laser Institute, Makati City, Philippines
[2]Eye Institute, St. Luke's Medical Center, Quezon City, Philippines
[3]Department of Ophthalmology and Visual Sciences, College of Medicine – Philippine General Hospital, University of the Philippines, Manila, Philippines

Correspondence: Franz Marie Cruz, MD
Clinic Address: Peregrine Eye and Laser Institute, 347 Sen. Gil Puyat Avenue, Brgy Bel-Air, Makati City, Philippines
Contact Number: +632-88900115
Email address: focruz@up.edu.ph

Disclosure: The author reports no conflicts of interest.

Neuro-ophthalmology is a highly specialized yet often underfunded and underappreciated subspecialty in ophthalmology, particularly when compared to more popular fields such as retina, glaucoma, anterior segment, and oculoplastics.[1,2,3] What sets it apart is its unique position at the crossroads of neurology and ophthalmology, dealing with visual disturbances that arise from disorders of the central nervous system and systemic diseases.

Unlike other subspecialties that primarily rely on visible ocular findings—such as lens opacities in cataract, retinal microaneurysms in diabetic retinopathy, or optic nerve cupping in glaucoma—neuro-ophthalmology challenges clinicians to think beyond the eye.[4] It demands a global, holistic, systems-based approach that consistently begins with detailed history-taking, thorough review of past medical records, and prolonged chair time.[4] The clinical examination extends well beyond the conventional six-step ocular assessment, and diagnostic workup often involves costly imaging and ancillary tests. Effective management frequently requires close collaboration with specialists in neurology, internal medicine, pediatrics, or neurosurgery, highlighting the interdisciplinary nature of neuro-ophthalmology.

In many cases, neuro-ophthalmologists are the final specialists patients consult after multiple evaluations by other clinicians fail to uncover the cause of their symptoms.[4] Individuals with vague or unusual complaints, atypical presentations, inconclusive or "negative" imaging, or unresolved diagnostic dilemmas are often referred to neuro-ophthalmology in search of a definitive diagnosis. Neuro-ophthalmologists are frequently regarded as the "specialist's specialist," receiving referrals from retina, glaucoma, cornea, and neurology for cases of unexplained visual loss. These colleagues turn to neuro-ophthalmologists when faced with diagnostic uncertainty, relying on their expertise to identify the underlying cause when other subspecialties have been exhausted.

Despite its importance, neuro-ophthalmology remains one of the least pursued career paths among ophthalmology trainees worldwide. Surveys from the United Kingdom (UK) and Israel reported that neuro-ophthalmology ranks among the lowest in career preference among postgraduate

Philipp J Ophthalmol 2025;50:72-75

ophthalmology trainees.[2,5] The subspecialty is widely perceived—and justifiably so—as intellectually demanding, time-consuming, and less focused on income-generating procedures.[4] As a result, many young ophthalmologists gravitate toward higher-revenue, procedure-heavy fields such as retina, refractive surgery, glaucoma, anterior segment, and oculoplastics.[6]

Yet for those who pursue it, neuro-ophthalmology offers a deeply rewarding professional path. It delivers ongoing intellectual stimulation, a wide spectrum of complex and fascinating cases, and endless opportunities for learning and growth. Neuro-ophthalmologists provide answers—and hope—to patients who have often endured months or even years of diagnostic uncertainty. Their expertise is valued not only by patients, but also by fellow clinicians who turn to them to help solve some of the most challenging clinical dilemmas.

Although the field may not offer the high procedural volume or income potential associated with other ophthalmic subspecialties, neuro-ophthalmology provides something equally, if not more, meaningful: the chance to make a profound impact through diagnostic acumen, careful clinical reasoning, and compassionate care. Importantly, neuro-ophthalmologists in the United States (US) also report comparable levels of professional and personal satisfaction to their peers in other ophthalmic subspecialties, with similar scores in work-life balance and overall well-being.[7]

Neuro-ophthalmology practice in a developing country and an archipelago like the Philippines comes with unique challenges. Patients often present late, with advanced or irreversible vision loss, due to limited access or delayed referrals. Diagnostic tools like MRI, electrophysiology and specialized laboratory tests may not always be readily available or affordable, especially in more remote or underprivileged areas. Many neuro-ophthalmologists practice general ophthalmology alongside neuro-ophthalmology to sustain a clinical workload. Yet these challenges are also what make the practice meaningful. There is a sense of purpose in being one of the few who can navigate these complex cases, advocate for earlier detection, and help improve referral systems. Seeing a patient regain hope after months of diagnostic uncertainty—or helping prevent blindness with a timely diagnosis—are rewards that stay for Filipino neuro-ophthalmologists.

As we move into the era of artificial intelligence (AI), neuro-ophthalmology remains highly relevant. AI can detect patterns, but it cannot yet replace the clinical judgment needed in cases with subtle signs or diverse, conflicting information. In a recent study evaluating the appropriateness of ophthalmology recommendations generated by a large language model, neuro-ophthalmology ranked among the poorest-performing subspecialties, frequently omitting critical information due to the complexity of the cases and the subtlety of clinical reasoning required.[8] As Spitze *et al.* aptly noted, neuro-ophthalmology "teaches not just what to think, but more importantly how to think."[4]

Despite its critical role, there remains a severe shortage of neuro-ophthalmologists in the Philippines. Levina and Artiaga identified the field as one of the country's most needed specialties.[9] The North American Neuro-Ophthalmology Society (NANOS) and the American Academy of Ophthalmology recommend at least one neuro-ophthalmologist for every 1.2 million people.[5] With fewer than 50 trained specialists serving a population exceeding 118 million, we are at least another 50 neuro-ophthalmologists short—leaving access to care severely limited.

As the country pushes toward Universal Health Care, ensuring that subspecialty services like neuro-ophthalmology are available and accessible is crucial. Early diagnosis and proper referral can prevent permanent vision loss, reduce complications, and even save lives. It can also help avoid unnecessary tests and treatments, which lowers healthcare costs and improves overall patient care.

Now more than ever, we must not only practice neuro-ophthalmology with excellence, but also cultivate the next generation of specialists. To address the current gap, Alhahwani suggests strengthening local fellowship programs, fostering early interest through focused clinical rotations and observerships, and maintaining a vibrant subspecialty society that supports academic development and collaboration.[1]

This is where the Neuro-Ophthalmology Society of the Philippines (NOSP) plays a vital role by

organizing webinars, postgraduate courses, fellowship training programs, and other educational activities that promote awareness and scholarly exchange. This has been the very vision of the founding members 25 years ago—a vision that the Society has faithfully upheld to this day. We are proud to report that, to date, our local fellowship programs have produced 22 graduates, now practicing across different regions of the country.

Over the past 2.5 decades, NOSP has hosted numerous lectures, featuring both local experts and distinguished international speakers, from Asia, Australia, Europe and North America. A landmark achievement was the hosting of the 2019 meeting of the Asian Neuro-Ophthalmology Society, initiated by one of NOSP's founding members, Dr. Jesus Tamesis, Jr.

Finally, to mark its 25th anniversary in 2025, the Society further expanded its educational initiatives, which included a webinar series and an in-person postgraduate course. Additionally, this issue of the Philippine Journal of Ophthalmology is dedicated to neuro-ophthalmology.

In this issue, Narag and Melendres provide an update on the leading causes of nonglaucomatous optic neuropathy seen in a tertiary hospital over a 13-year period.[10] Two original studies explore less commonly examined ophthalmic aspects of diabetes: Apostol and Montesines investigated pupillary parameters measured by a smartphone application, while Reyes *et al.* evaluate color vision testing as a possible screening tool.[11,12]

This issue also features rare neuro-ophthalmic complications of endemic infections, highlighted in "Dengue-Associated Neuroretinitis: A Case Report" and "Isolated Oculomotor Nerve Palsy as the Initial Manifestation of CNS Tuberculoma in an HIV-Positive Adult: A Case Report".[13,14] In addition, Sakurai and Montesines describe the clinical findings of a rare case of nine syndrome.[15]

Two separate clinicoradiopathologic reports on orbital malignancies by Hernandez-Tan *et al.* and Vergara *et al.* offer valuable insights to their diagnosis.[16,17] Finally, addressing a current topic of concern, NOSP has issued an advisory for ophthalmologists and other health care professionals regarding recent reports of increased risk of non-arteritic anterior ischemic optic neuropathy (NAION) in patients receiving GLP-1 receptor agonists such as semaglutide for diabetes and obesity.[18]

Neuro-ophthalmology may be a small field, but its reach is far greater than its size. Its value lies in its depth, its complexity, and the life-changing clarity it can offer to patients navigating the most difficult diagnostic paths in medicine.

REFERENCES

1. Aldhahwani B. Neuro-ophthalmology in Saudi Arabia: Clinical practice, challenges, and future directions. *Saudi J Ophthalmol.* 2020 Nov 22;34(1):40-44.
2. Dean WH, Grant S, McHugh J, *et al.* Ophthalmology specialist trainee survey in the United Kingdom. *Eye (Lond).* 2019 Jun;33(6):917-924.
3. Sayal AP, Ahmed Y, Popovic MM, *et al.* Supply and demographic characteristics of Ontario's ophthalmologists from 2010 to 2019: a population-based analysis. *CMAJ Open. 2022* Dec 20;10(4):E1067-E1078.
4. Spitze A, Al-Zubidi N, Lam P, Yalamanchili S, Lee AG. Neuro-ophthalmology as a career. *Indian J Ophthalmol.* 2014 Oct;62(10):1013-4.
5. Leshno A, Shalev D, Landau Prat D. Ophthalmic exam and ophthalmology residents' subspecialty preference. *Int J Ophthalmol.* 2024 Feb 18;17(2):359-364.
6. Frohman LP. How can we assure that neuro-ophthalmology will survive? *Ophthalmology.* 2005 May;112(5):741-3.
7. Gedde SJ, Feuer WJ, Crane AM, Shi W. Factors Influencing Career Decisions and Satisfaction Among Newly Practicing Ophthalmologists. *Am J Ophthalmol.* 2022 Feb;234:285-326.
8. Tailor PD, Xu TT, Fortes BH, *et al.* Appropriateness of Ophthalmology Recommendations From an Online Chat-Based Artificial Intelligence Model. *Mayo Clin Proc Digit Health.* 2024 Mar;2(1):119-128. doi: 10.1016/j.mcpdig.2024.01.003. Epub 2024 Feb 15.
9. Levina F, Artiaga JC. Around the Philippines: A Perspective On The Demographics Of Pinoy Ophthalmology Training. July 18, 2023:https://www.efptoday.com/around-the-philippines-a-perspective-on-the-demographics-of-pinoy-ophthalmology-training/ (Accessed May 31, 2025).
10. Narag JCR, Melendres KC III. Etiology and Clinical Profile of Non-Glaucomatous Optic Neuropathy in a Tertiary Government Hospital in the Philippines. *Philipp J Ophthlamol.* 2025; 50:80-85.
11. Apostol ERV, Montesines MKM. Correlation of Glycosylated Hemoglobin Level with Pupillary Parameters using the Reflex PLR© Mobile Application in Type 2 Diabetes Mellitus Patients. *Philipp J Ophthlamol.* 2025; 50:86-92.

12. Reyes KBR, Bondoc-Hermosa MJO, Garcia-Arenal MCP, Perez, RC. Correlation of Color Vision Impairment and Capillary Blood Glucose in Diabetic Patients without Retinopathy vs. in those with Mild Non-Proliferative Diabetic Retinopathy. *Philipp J Ophthlamol.* 2025; 50:94-98.
13. Dagta, MG, Bautista AP, Palisoc ED. Dengue-Associated Neuroretinitis: A Case Report. *Philipp J Ophthlamol.* 2025; 50:99-102.
14. Cruz FM, Leyritana KT, Roman AD, Pascual JL. Isolated Oculomotor Nerve Palsy as the Initial Manifestation of CNS Tuberculoma in an HIV-Positive Adult: A Case Report. *Philipp J Ophthlamol.* 2025; 50:103-107.
15. Sakurai YT, Montesines MKM. A Rare Case of Nine Syndrome. *Philipp J Ophthlamol.* 2025; 50:108-111.
16. Hernandez-Tan JA, Bargas NV, Estolano B. Surgical Resection and Postoperative Chemotherapy for Optic Nerve Glioma with Intracranial Extension in a 10-year-old Male: A Long-term Follow-up Case Report. *Philipp J Ophthlamol.* 2025; 50:112-116.
17. Vergara FM, Cohitmingao S, Sarabosing E. Metastatic Adenocarcinoma Presenting as an Orbital Mass with Orbital Apex Involvment: Application of Immunohistochemistry in Diagnostic Ophthalmic Pathology. *Philipp J Ophthlamol.* 2025; 50:117-121.
18. Labiano A, Cruz FM, Montesines MK, et al. Non-arteritic Anterior Ischemic Optic Neuropathy and Semaglutide Use: An Advisory to Ophthalmologists and Other Health Care Professionals. *Philipp J Ophthlamol.* 2025; 50:122-125.