

The Challenge of Dry Eye Disease in Developing Countries

Victor L. Caparas, MD, MPH^{1,2,3,4,5,6}

¹Founding Member and former President, Cornea Club of the Philippines (now the Philippine Cornea Society)

²Member and Country Liaison, Tear Film and Ocular Surface Society

³Member, International Ocular Surface Society

⁴Member, Asia Dry Eye Society

⁵Member, Cornea Society

⁶Member, Asia Cornea Society

Correspondence: Victor L. Caparas, MD, MPH

Office Address: The Medical City, Medical Arts Tower, Room 1912, Ortigas Avenue, Pasig City, Philippines 1600

Office Telephone Number: +632 8635 3202

Email Address: vjlcaparas@themedicalcity.com.ph

Disclosure: The author reports no relevant financial interests or relationships.

Dry eye disease (DED), currently and, perhaps, at long last a widely accepted prevalent ocular disorder, poses significant challenges, particularly in the developing world, including the Philippines. It disrupts the tear film, leading to discomfort and visual impairment, thereby affecting not only quality of life but economic productivity as well. The ubiquitousness of computer screen use and the evolution of cataract surgery into refractive surgery are only two causative factors of a complex, multivariate problem. Despite its global prevalence, a stark contrast exists in the awareness, diagnosis, and treatment of DED between developed and developing regions. This editorial aims to underscore these disparities, focusing on the crucial roles of healthcare awareness, diagnostic advancements, accessible treatment options, prioritization of governmental policies, and the ethical engagement of the pharmaceutical industry to enhance DED management in under-resourced settings.

Current State of DED Awareness

Awareness of DED is critically low in developing regions, among both the general populace and, sadly, healthcare professionals. This festers, despite the current surfeit of dry eye lectures, papers, pathways, and algorithms that seem to flood every scientific meeting. A glaring basic deficiency is the dearth of domestic epidemiologic data on which any clinical or public health intervention is based. Whatever local research efforts mounted have been one-shot studies to satisfy residency training graduation requirements or industry-sponsored projects too limited in purpose and scope to paint a definitive picture of DED in the country. To the best of my knowledge, there exists no long-term, focused research effort currently being conducted in the country. This lack of awareness and of appreciation, and of a sometimes cynical subordination by practitioners of current dry eye management guidelines to prioritize only reimbursable, more lucrative eye procedures, compounded by cultural misconceptions and educational deficits, lead to a high rate of underdiagnosis and, consequently, undertreatment. It cannot be overly emphasized that elevating DED awareness is pivotal, as early detection can substantially mitigate the disease

Philipp J Ophthalmol 2024;49:1-3



progression and improve patient outcomes. Strategies to enhance awareness should include a more earnest emphasis during basic and post-graduate ophthalmology training highlighting the use of appropriate technology, community health programs, and public health campaigns, tailored to overcome local barriers.

Diagnosis of DED in the Developing World

Diagnostic facilities for DED in developing countries are often inadequate, lacking the sophisticated tools available in more affluent regions. So-called “centers of excellence” established by a few tertiary private hospitals offering state-of-the-art technology are sorely inadequate in addressing what is a true public health concern. This scarcity necessitates reliance on symptom-based diagnosis which, while useful, lacks the precision of instrument-based diagnostics. Bridging this gap requires the innovation of cost-effective, accessible diagnostic tools and comprehensive training for healthcare workers in their use. Such advancements, such as recent tear film-oriented techniques, and less complex algorithms, such as that formulated by the Asia Dry Eye Society, could democratize DED diagnosis, making it a routine part of ocular health assessments in primary care settings.

Treatment Landscape

Treatment accessibility remains a significant hurdle in the developing world, with many effective DED therapies either unavailable or unaffordable. Addressing this issue necessitates a twofold approach: (1) enhancing the supply chain for existing medications, and (2) developing new, low-cost treatment alternatives. The cost of commercial dry eye preparations, while mostly highly-effective, are too prohibitive for the great majority of the population. Local manufacturing initiatives, subsidized treatment programs, and the use of generic drugs could play pivotal roles in making DED treatments more accessible. Streamlining of regulatory processes and relaxation of tax policies for scientific innovation are likewise vital. Moreover, community-based management programs could offer

practical support and education to patients, improving adherence and treatment outcomes.

Role of Industry

The engagement of both the pharmaceutical and financial industries in DED management in developing countries is crucial yet complex. Beyond merely supplying medications and investing in the development of new drugs and devices, there is a moral imperative for these entities to invest in local healthcare infrastructures, engage in ethical drug pricing, and support educational initiatives. Such involvement should be guided by a genuine commitment to improving public health outcomes and balancing profitability with social responsibility. These goals should then be facilitated and institutionalized by enlightened government policies and administration. Collaborative partnerships between governments, non-governmental organizations, and industry have been shown, albeit up to now on smaller scales, to facilitate such an approach, ensuring that DED management becomes a shared priority.

Bridging the Gap

Combating DED in the developing world necessitates a unified approach, bringing together healthcare providers, policy makers, the financial sector, the pharmaceutical industry, and communities. By integrating awareness campaigns, improving diagnostic and treatment accessibility, and ensuring ethical industry practices, significant strides can be made in DED management. Drawing inspiration from global health success stories, stakeholders can create a robust framework for DED care, significantly enhancing life quality for affected individuals.

Conclusion

Managing DED in the Philippines and other developing regions requires a holistic, collaborative effort. By addressing the issues of awareness in the medical, public, and governmental sectors, of reliable

but budget-appropriate diagnostics, of treatment accessibility, and of committed financial and pharmaceutical industry involvement, it is possible to transform the landscape of DED care in the Philippines and elsewhere, ensuring that those in most need receive effective, compassionate, and equitable treatment.

Role of the Cornea Society

Any movement needs an instigator, an organizer, a leader. The Philippine Cornea Society, being the *de facto* authority in this field, could assume these roles, both as an organization, and just as important, as individual members. To repurpose and “renew its vows” to improve corneal health in its 25th year of existence by taking on DED, while fraught with difficulty, would not be pointless.

REFERENCES

1. Morthen MK, Magno MS, Utheim TP, *et al.* The vision-related burden of dry eye. *Ocul Surf.* 2022;23:207-215.
2. Galor A, Britten-Jones AC, Feng Y, *et al.* TFOS Lifestyle: Impact of lifestyle challenges on the ocular surface [published correction appears in *Ocul Surf.* 2024 Jan 25;32:104]. *Ocul Surf.* 2023;28:262-303.
3. Yang W, Luo Y, Wu S, *et al.* Estimated Annual Economic Burden of Dry Eye Disease Based on a Multi-Center Analysis in China: A Retrospective Study. *Front Med (Lausanne)*. 2021;8:771352.
4. Tovar AA, Frankel ST, Galor A, Sabater AL. Living with Dry Eye Disease and its Effects on Quality of Life: Patient, Optometrist, and Ophthalmologist Perspectives. *Ophthalmol Ther.* 2023;12(5):2219-2226.
5. Kickbusch I, Krech R, Franz C, Wells N. Banking for health: opportunities in cooperation between banking and health applying innovation from other sectors. *BMJ Glob Health.* 2018;3(Suppl 1):e000598.
6. Masum H, Singer PA. Venture capital on a shoestring: Bioventures' pioneering life sciences fund in South Africa. *BMC Int Health Hum Rights.* 2010;10 Suppl 1(Suppl 1):S8.