Perspective Piece

The Pediatric Eye Health Challenge Beyond 2020

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Abstract. Evidence suggests that improved eye health offers the potential to progress toward achieving United Nations Sustainable Development Goals (SDGs). With Vision 2020: Right to Sight Initiative coming to an end and the emergence of the coronavirus pandemic, it is necessary to revisit the priority of pediatric eye health. Considering the profound impact of childhood blindness and visual impairment, it is important to draw the attention of public health leaders, policymakers, organizations, and governments to create innovative and effective strategies to combat the emerging eye health challenges of children and their families.

Pediatric health is a global priority; however, children continue to encounter significant challenges surviving past infancy and developing to their full potential.¹ Concerns regarding pediatric eye health are universal; globally, approximately 19 million children are living with defective vision.² Vision loss experienced by children has widespread effects on their quality of life, educational attainment, sustainable development, and economic productivity. Lack of access to quality eye health services, affordability, and poor awareness are the principal barriers to the uptake of pediatric eye services. Recognizing the exigency, the Vision 2020: Right to Sight initiative aimed to eliminate avoidable childhood blindness and visual impairment (VI) by 2020.³ The United Nations Convention on the Rights of Children also mandated an international collaboration to address pediatric eye health.

During the past two decades, the VISION 2020 strategies and intervention immensely helped to reduce the incidences of infectious pediatric eye diseases.⁴ Improved health services resulting in increased detection rates and reduced child mortality have led to a substantial increase in the number of children living with vision loss. However, the burden of pediatric eye health has notable regional variability; the prevalence of vision loss for children and socioeconomic status are inversely correlated.⁵ In parallel, the leading causes of vision loss in children vary widely between regions and are determined by their ethnic, economic, and social status and the accessibility of effective primary health care (PHC).⁵ Low–middle income countries (LMICs) continue to encounter the challenges of congenital cataract, congenital glaucoma, retinopathy of prematurity, retinoblastoma, corneal scarring, xerophthalmia, trachoma, and onchocerciasis.⁶ In high-income countries, the challenges of LMICs are almost nonexistent; however, unavoidable causes like lesions of the optic nerve and visual pathways are predominant. Uncorrected refractive error (URE), glaucoma, and hereditary retinal dystrophies exist in all regions.

Despite the variations in patterns and burdens among countries, pediatric ocular health will continue to have a significant impact on the global health system and economy. The economic prosperity of a country is negatively correlated with the burden of childhood blindness.⁵ LMICs have many

demands on their resources and a myriad of challenges regarding pediatric ocular health; these demands and challenges were amplified when the stability and sustainability of the health system were tested by the coronavirus disease 2019 (COVID-19) pandemic. In LMICs, there is a significant gap in the understanding the pediatric eye symptoms that impedes communities from accessing quality pediatric ocular services.⁷ The shortage of pediatric eye care providers, affordability of ocular health, conflicting family needs, and ignorance regarding the importance of routine eye examinations are obstacles that inhibit the ability to facilitate pediatric eye health.⁷ The existing school eye health initiatives have a narrow focus that mostly emphasizes only the detection and referral of URE in school children. The eye health of children with other disabilities and that of children not in school are not addressed.

URE, particularly myopia, is an emerging epidemic that remains the leading cause of visual impairment in children.⁸ The onset and progression of myopia are associated with increased computer use.⁹ The COVID-19 pandemic has forced the closure of schools and the transition of education to online learning. Increased screen time and reduced time outdoors have aggravated URE among school children. Although school closures may be short-lived, increased access to and adoption of such platforms may accelerate the widespread acceptance of digital tools in the long-term, and dependence on digital devices may persist beyond the COVID-19 pandemic.¹⁰ The possibility of myopia explosion cannot be understated, and the present scenario offers a glimpse of future pediatric eye health challenges.

THE WAY FORWARD

The elimination of avoidable childhood blindness and visual impairment in children should remain a priority in the universal health agenda beyond 2020, and after the coronavirus pandemic. Policy changes should focus on integrating pediatric eye health into broader domestic and universal pediatric health drives. The interdisciplinary approach through Integrated Management of Neonatal and Childhood Illnesses (IMNCI) could lead to early detection and management of congenital and developmental blinding eye anomalies.¹¹ Solutions could also include reinforcing the training of primary health workers to perform vision screening of infants and pre-school children during well baby clinical visits and primary health center examinations. Additionally, a holistic child-

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centered approach that tailors pediatric services should be adopted. To address barriers, the parents' understanding of pediatric eye health should be promoted, organized referral communication pathways for parents should be enhanced, and coordination pathways between community services and hospitals need to be improved.

To withstand the emerging epidemic of refractive error, especially myopia, a coordinated global effort to create solutions to control its onset and progression is imperative.¹² Interventions to manage URE and related healthcare implications need to be strengthened because ameliorating childhood blindness has not resulted in the decreasing burden of URE.¹³ Because the main problem for children is refractive error, school health initiatives should continue as an integral part of the national eye program because it provides a unique opportunity and sustainable approach to catering services to the ever-increasing number of students globally. However, in the current context of COVID-19, as school and education programs reopen, intervention activities and practices conducted routinely during the past must be reconsidered and redesigned. Evidence has shown that training teachers to perform vision screening is cost-effective. Introducing mandatory ocular examinations before school enrollment is an important opportunity for the timely detection of and intervention for eye problems in children. It is necessary to improve school-based initiatives by using digital interventions, such as the Peek Vision applications and the creation of online registries for records. However, vision screening programs must reliably detect the target condition and ensure that treatment, in whatever form, is available and affordable and can be realistically implemented. To address eye health issues of children not in school, parental advocacy supplemented by effective community outreach activities are the key strategies.

Simultaneously, preventing disability and improving the quality of life through education and rehabilitation should be emphasized because unavoidable causes are expected to increase. Population-representative data and operational research are required to gain further evidence contributing to our understanding of the barriers to children's eye care and develop effective evidence-based child-centered services. To address the gap in data, pediatric eye health data collection tools should be incorporated with general childhood and health surveys. Improved accessibility to affordable and quality pediatric eye care through tertiary eye care needs to be addressed at the national and global platforms. In settings with limited resources, it is paramount to ensure that policies and strategies not only address existing challenges but also are implemented in a way that is assessable, effective, efficient, and preferably sustainable.

Because consequences of our passivity could range far beyond vision, addressing pediatric eye health challenges should be regarded as not only improving vision but also reducing disability and promoting well-being. Despite notable

accomplishments, the 2020 pandemic has unfolded complex pediatric eye health challenges beyond the prevailing burden. It is imperative to identify transformative opportunities, implement a holistic approach, and respond collaboratively to eliminate avoidable vision loss in children.

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