The Misnomer *"Vision Screening"* is Interfering with Children Receiving Essential Vision Care in the U.S.

In the U.S., one in every four children have vision disorders that require diagnosis and treatment by an eye doctor, yet most children with vision disorders never see an eye doctor for diagnosis and treatment. Vision is uniquely interconnected with overall health, behavioral health and school readiness from a very early age and continuing throughout the educational process. Vision problems are almost always correctable with timely diagnosis and treatment; however, current approaches to prevention fall short of ensuring that all children have timely access to comprehensive and high-quality care.[i] This situation exists because of a singular overreliance on so-called "*vision screening*" to identify children requiring eye examination by an eye doctor.[ii]

A child's vision and overall well-being depends on getting the best health care (i.e. diagnosis and treatment, at the right time, by the right doctor).

The National Academies of Sciences, Engineering and Medicine (NASEM) in "Making Eye Health a Population Health Imperative: Vision for Tomorrow" (2016) described "vision screenings" as services that can possibly identify but never diagnose eye disease and conditions. Vision screenings of any type only lead to a referral to an eye doctor, not to a diagnosis, detection or treatment such as a current and accurate prescription for eyeglasses and other treatments and/or protective eyewear.

"Amblyopia screening," the prevention service rendered in school screenings and pediatric well child visits, should be fully understood, and not be referred to as "vision screening."

Amblyopia (commonly described as a "lazy-eye") is present in 2% to 3% of children and can adversely affect cognition, learning and socialization in the classroom, if not diagnosed and treated.[iii] Screening for the presence of amblyopia and amblyopia risk factors during a critical period is therefore appropriate. The top two risk factors for amblyopia are 1) strabismus, large visible eye turns and 2) anisometropia, a large difference in vision between each eye.[iv]

Importantly, amblyopia screening does not screen for most binocular and oculomotor vision conditions, such as hyperopia (farsightedness), disorders of convergence (turning the eyes inward), disorders of

divergence (turning the eyes outward), disorders of tracking (following objects in space), disorders of accommodation (focus ability at near) and disorders of fusion (the ability to fuse images from each eye in the brain into one stereoscopic 3D image). Left undiagnosed these conditions can also adversely affect cognition, learning and socialization.

The U.S. Preventive Services Task Force [USPSTF] states that screening for amblyopia is mildly effective when used appropriately in the age range of 3-5. It goes on to state that this screening is meant only for children who are asymptomatic, and whose parents or caregivers have no concerns regarding their child's vision or education performance. Unfortunately, parents will not report concerns because children having problems might not verbalize or show signs of problems (since kids do not know what normal vision would be). Additionally, educational performance is not asked about for the purpose of excluding a child from screening and sending them instead for an eye examination by an eye doctor.

With these considerations, an amblyopia screening is a singular and very limited tool in the effort to identify a variety of childhood vision and ocular problems and is therefore unreliable as an effective screening event for vision. Additionally, a vision screening (i.e., amblyopia screening) appears to create racial disparities to the attainment of needed health services by creating different outcomes for different racial groups. Children from poor urban areas, many of whom are considered ethnic minorities, experience more than twice the normal rate of vision problems but are also less likely to be referred to and receive eye examination by an eye doctor.[v]

VISION SCREENING (I.E. AMBLYOPIA SCREENING) CREATES DIFFERENT OUTCOMES FOR DIFFERENT RACIAL GROUPS.

This particular deficiency is disproportionally highlighted by the U.S. Department of Health and Human Services Head Start program which, although well-intentioned to develop strong cognitive skills among all children, falls short in the area of vision.[vi] Among the Head Start population, Hispanic and Black children make up the top percentages of children who have not received an eye examination by an eye doctor.[vii] The importance of addressing this unmet need, within this program alone, is highlighted by new data that shows that among children aged 3 to 6 years, visual impairment is projected to increase in the U.S. by 45% among Latinx children and 14% among Black children from 2020 to 2060, while vision impairment is expected to decrease by 22% among white children of similar age during this same time period.[viii]

The terminology "*vision screening*" when used to describe "amblyopia screening" is misleading and creates unnecessary confusion to a vulnerable population and secondarily reduces needed access to eye examinations by an eye doctor to diagnose and mitigate a vision disorder and support appropriate education and social advancement. Children ages 3-6 of families at or below 400 percent of the federal poverty level (FPL) have greater need but less access to effective vision care.[ix] Children from these same disadvantaged populations are also more likely to have undiagnosed health and vision problems which require more in-person eye examinations by an eye doctor.[x]

The public does not accept misuse of screening terminology in other instances. For example, the USPSTF identifies 14 different types of "cancer screenings" and the terminology "skin cancer screening" would not be considered as acceptable vocabulary to general "cancer screening" (i.e. of all cancers, including but not limited to bladder, breast, cervical, colorectal, gynecological, lung, oral, ovarian, pancreatic, prostate, testicular and thyroid cancers).[xi] Meanwhile, in the realm of children's vision care, the USPSTF and others blindly accept and promote amblyopia screening as analogous to vision screening. This is a public disservice.

Vision health equity, which assures all children receive comprehensive eye examinations from eye doctors, is essential for educational and economic security, as well as other benefits for children and the nation. Black and Hispanic adolescents are three times as likely as white adolescents to have inadequately corrected (uncorrected and undercorrected) distance vision impairment.[xii] When racial equity is not consciously addressed, racial inequality is often unconsciously perpetuated.[xiii] Inequitable access to comprehensive vision care is a result of historical children's vision policy, rooted through inequity in institutional practices and defended and tolerated by professional self-interest. National Survey of Children's Health (2018 NSCH) data show Black children are getting screened at higher rates than white children. Many low-income minority youths appear to suffer from a disproportionately high prevalence of educationally relevant vision problems and are clearly at high risk for inadequate treatment of vision problems.[xiv]

The Bottom Line: We must begin repair of a broken system by using appropriate terminology.

A misuse of terminology (i.e. vision screening) has led to inappropriate policy decisions which perpetuate racial and social inequities on a federal level. For example, Early and Periodic Screening, Diagnostic and Treatment (EPSDT), the child health component of Medicaid, incorrectly informs parents that the well-child exam includes "vision screening" as opposed to "amblyopia screening."

In conclusion, amblyopia screening must no longer be referred to as "vision screening," but instead to its more accurate terminology "amblyopia screening," and only be recommended, if at all, during the developmental period ages 3 to 5. Federal, state and local systems of care and prevention should modify existing "vision" policies to conform to this more accurate terminology to avoid confusion and the perpetuation of racial and social inequities in access to eye examination by an eye doctor.

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[ii] http://www.visionandhealth.org/documents/Child_Vision_Report.pdf
[iii] http://www.visionandhealth.org/documents/Child_Vision_Report.pdf
[iv] http://www.visionandhealth.org/documents/Child_Vision_Report.pdf
[v] Zaba JN, J BehavOptom2011; 22(2):39-41
[vi] https://www.acf.hhs.gov/ohs/about/head-start
[vii] Ying G, et. al. Ophthalmology 2014; 121 (3): 630-636
[viii] Varma et. al. JAMA Ophthalmology 2017; 135 (6): 610-616
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[x] https://www.nihcm.org/pdf/HealthDisparitiesFinal.pdf
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