

VISION and EYE HEALTH

Vision and eye health screening is an important component of the public health goal of increasing the number of individuals who receive appropriate eye health and vision care. Unlike a comprehensive examination by an optometrist or ophthalmologist, screening does not result in a diagnosis, but identifies problems and risk factors that should be further investigated and addressed. Vision screening without the eye health component may occur in schools or in the community, and may be provided by school nurses, community health workers, teachers, lay screeners, staff in clinicians' offices, or trained vision screeners. [i] It is acknowledged that there is overlap between what is considered part of a screening versus a comprehensive examination in different parts of the world. Ultimately, it is the intent of the World Council of Optometry that all children who fail vision screenings with indicators of a potential vision and/or eye health problem, or neurodevelopment anomaly will have access to comprehensive eye exams.

Vision screenings typically assess one or two components of the visual system. [ii] Many screening programs emphasize distance visual acuity or refractive error. Distance visual acuity is mainly affected by uncorrected myopia, high hyperopia, and moderate-high astigmatism. Miller et. al. reported that visual acuity screening alone has good sensitivity (90%) for the detection of uncorrected refractive error, but poor (44%) specificity. Specificity improved to 86% by adding non-cycloplegic autorefraction. Myopia is of great concern as it is the center of an impending epidemic that could lead to visual impairment.[iii] Low levels of myopia in children may progress to higher levels (above 6 D) by adolescence.[iv] Myopia is associated with changes in eye health including retinal detachment, glaucoma, and other conditions related to the eye's increased axial length that affect the sclera, choroid and optic nerve; with the risk of these conditions being higher with moderate or high amounts of myopia with increased evidence of this at lower levels of myopia.[v] In addition, small amounts of hyperopia or emmetropia in preschool-aged children may be considered a risk for future myopia development.[vi] Near visual acuity is mainly affected by high levels of hyperopia, myopia and astigmatism and may be seen in moderate hyperopia but that is not always the case. Uncorrected hyperopia may be associated with amblyopia, strabismus, reading deficits, and academic difficulties. [vii], [viii], [ix], [x] Therefore, it is important to accurately assess refractive error as well as distance and near visual acuity.

Vision screenings that assess more than distance visual acuity or refractive error alone are preferred because of their increased ability to detect binocular vision anomalies and other ocular morbidities in children. A vision screening should include visual acuity, non-cycloplegic autorefraction and screening for binocular vision anomalies. [xi], [xii], [xiii] A vision screening that evaluates if there is an eye health problem or binocular vision anomalies would require clinical personnel that were appropriately trained. In programs where the vision screening results in prescribing spectacles for refractive error, as is the practice in some parts of the world, it is preferred that an optometrist or other eye care professional who has appropriate education and expertise in diagnosing and treating children be involved in the care of the patient.

For a vision screening program to be successful, children who have been identified with potential problems must receive the appropriate care including comprehensive eye examination, diagnosis, and appropriate treatment. However, following vision screening in schools, studies show that only 54-60% of children who are referred for comprehensive eye examination actually present for that examination. Barriers identified as to why children do not seek recommended care include lack of awareness of parents and lack of access to services. [xiv], [xv], [xvi]