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## **Project Narrative:**

### **Building the capacity of lay health professionals to do pediatric vision screenings**

#### ***Background:***

Childhood visual impairment and blindness represents a significant global disease. Worldwide, about 18.9 million children aged 0-14 years have low vision or blindness.<sup>1</sup> While it comprises only 4% of vision loss worldwide, childhood vision loss is a lifelong disease: compared with adult vision loss, children have 40 additional years of quality of life and productivity losses.<sup>2</sup> The number of “blind years” attributable to all cases of childhood vision loss, is thus, roughly equivalent to the number of “blind years” due to all cases of adult cataract.<sup>3</sup> The burden of childhood vision loss is, therefore, disproportionate to its prevalence.

Nevertheless, if detected early, much childhood vision loss is preventable and treatable.<sup>3</sup> The American Association for Pediatric Ophthalmology and Strabismus (AAPOS) recommends “frequent and age-appropriate” vision screening for all children.<sup>4</sup> Vision screening helps to diagnose refractive error, which can be easily corrected with glasses, and helps to identify more serious ocular pathologies: strabismus (misalignment of the eyes), cataract, and malignancy. Early vision screening in children one to six years of age also helps to detect and prevent amblyopia, irreversible vision loss secondary to under-stimulation of the brain. Screening vision in children seven years and older is important to maximize visual capacity and optimize performance in school.

Unfortunately, some high-risk populations of children have limited access to vision screening and early treatment.<sup>5</sup> In the United States, Hispanic children are at high-risk for preventable and treatable vision loss. Hispanic children have been found to have a high rate of correctable refractive error.<sup>6</sup> Furthermore, the prevalence of amblyopia among Hispanic children is 2.6%. While this rate is not substantially higher when compared to other reported rates of amblyopia worldwide, three-quarters of this amblyopia is found to be secondary to uncorrected refractive error.<sup>7</sup> In other words, a simple pair of spectacles could prevent a significant amount of reversible and permanent vision loss in the Hispanic pediatric population. However, Hispanic children, particularly children of Mexican immigrants and migrant workers, face substantial barriers to eye care. Moreover, lack of transportation, financial and insurance limitations, and language difficulties often hinder appropriate referral and follow-up of Mexican immigrant children.<sup>8</sup>

#### ***Pediatric Vision Screening at the Mexican Consulate:***

Ventanilla de Salud (VDS) is a health organization developed by the Mexican Department of Health and Ministry of Foreign Affairs. VDS has been established in 50 Mexican consulates throughout the United States. Collaborating with local health organizations, each VDS offers health education, prevention, and referral services to Mexican immigrants seeking consular services.<sup>9</sup> The VDSA at the Mexican Consulate in Atlanta currently serves individuals

from Georgia, Alabama and Tennessee, and often only sees them in person once when they come to the Consulate. A survey conducted this summer showed that 75% of visitors were undocumented Mexican immigrants, highlighting the potential of the Consulate as a point of contact [FKF2] for a vulnerable population (data not published). Recently, the VDS at the General Consulate of Mexico in Atlanta collaborated with Emory University and the Georgia Lions Lighthouse Foundation (a non-profit charity eye clinic) to offer pediatric vision screening in the consulate waiting room. A medical student and ophthalmologist from Emory trained VDS staff to perform AAPOS guideline-based screenings. Using this training, VDS staff members were able to screen approximately 200 Mexican children. All children with concerning pathology were then referred to the Georgia Lions Lighthouse Foundation pediatric clinic for a comprehensive eye exam. This collaboration between VDS and the charity eye clinic streamlined referral: VDS staff members could address barriers to eye care by directing patients toward a culturally-sensitive and financially-appropriate provider.

The success of this pediatric vision-screening program suggests that our model of screening and referral may be successfully implemented throughout the VDS network. As described in the following proposal, we seek to establish a pediatric vision screening training program for staff members at other VDS programs throughout the country. We hope to use video and Powerpoint training materials, screening kits, and a marketing campaign to disseminate our model of screening and referral of pediatric eye disease.

### ***Project Aims:***

We intend to address the following aims in our project:

**Aim 1:** To educate staff members in VDS programs on the importance of childhood visual impairment and blindness.

**Aim 2:** To encourage VDS programs to offer education and preventative materials to consular clientele on pediatric eye disease.

**Aim 3:** To train staff members at VDS programs to perform pediatric vision screening.

**Aim 4:** To help connect VDS organizations with local non-profit eye care organizations.

**Aim 5:** To analyze project effectiveness through quantitative and qualitative feedback.

### ***Methodology:***

#### **Phase 1: Pilot Training Program**

We will construct a three-pronged pilot training program to implement at three different VDS organizations. The organizations will be selected on a volunteer basis, but we are considering VDS organizations in Philadelphia, Boston, and San Antonio, Texas, as key personnel travel there frequently and could minimize cost dedicated to travel. The training will include 1) a video training session 2) a Powerpoint training tool and 3) a manual to be used in conjunction with in-person training, marketing, and feedback. The DVD will be created through the Emory University MediaLab facilities. Both the video and Powerpoint will include education on the importance of childhood vision loss and the importance of screening. In addition, the video and Powerpoint training will include AAPOS guideline-based pediatric vision screening training and a vision screening kit. The marketing portion of the in-person training will include dissemination of handouts and other resources, which the staff can use to offer education to consular clientele on pediatric eye disease. The marketing portion of the in-person training will also include recommendation, if needed, of local eye care providers with whom staff can collaborate and send referrals.

Pilot project evaluation will be performed at multiple stages throughout the project to determine training efficacy and success of implementation of a screening program at each consulate. To thoroughly evaluate the project, we will use online qualitative feedback in survey format and quantitative data collection. Qualitative data will include an online questionnaire to be filled out by staff members pre- and post-training. Quantitative data will include analysis of training efficacy and efficacy of screening programs at each VDS. Such data will include a pre- and post-test of knowledge by VDS staff. Each VDS will also be asked to keep a de-identified log of the number of children screened, the number of positive and negative screens, the number of referrals to follow-up, and the reasons for referral. With this qualitative and quantitative feedback, we hope to evaluate our training materials and reformat if necessary. This will allow us to create a quality pediatric vision-screening program that can be easily and effectively disseminated to all 50 VDS programs.

### **Phase 2: Dissemination of Training to All VDS Programs**

Through pilot evaluation, once we have identified the most effective training approach and re-modeled our program as such, we will offer to disseminate a Powerpoint and video training package, along with a vision screening kit and vision screening log, to the other 50 VDS programs. We will also try to promote the vision screening training through marketing phone calls and email messages, in addition to in-person marketing if travel is possible.

### ***Anticipated Results:***

By implementing our training model in three “pilot” VDS programs, we hope to educate all VDS staff members at each site. By educating all VDS staff members, we hope that every staff member can recognize and screen a child in the waiting room. We expect that if we train every staff member at the three VDS programs, we will have trained 15 VDS staff members in total. We hope to use qualitative and quantitative data described above to evaluate the effectiveness of our pilot training program. We expect that staff members will have a score of 90% or above on the post-test to ensure efficacy of training. We also expect that their score on the post-test will show marked improvement from their pre-test. We also will use survey feedback and the quantitative results to remodel our pilot training program, if necessary, before full dissemination.

After finalization of our training program, we hope that 25 VDS programs will request a training package. We expect that at least 25% of VDS programs will fully adopt our training program. The VDS in Atlanta currently screens about 25 kids per month. We hope that after providing training materials, VDS programs can collectively screen an additional 7,500 Mexican children annually.

### ***Impact on Access to Eye Care:***

Implementing a pediatric vision screening program within each Mexican consulate will help to improve access to care for an otherwise marginalized population. By educating VDS staff members on the importance of childhood vision loss, we hope to bring greater awareness of the disease and the impact it has among Mexican children. Doing so may lead to greater support of our initiative to implement pediatric vision screening and referral programs in VDS organizations nationally. By training staff members at VDS programs to perform pediatric vision screening, we hope to maximize Mexican immigrants’ access to screening services nationally. Schools will remain a primary location for vision screening services because school screening programs have a high volume of children. However, screening programs in Mexican consulates can offer three additional benefits: 1) screening of newly immigrated or highly transient migrant

families who may have missed school-scheduled screenings; 2) improved communication and education of parents who are present during the screening (which may not be the case at school-based screenings); and 3) streamlined referral to a culturally and financially sensitive provider. Such collaborations between VDS programs and local providers can also improve follow-up among Mexican children needing eye services, as parents may see the consulate staff members as safe and trustworthy health promoters.

We also hope to increase access to pediatric vision screening and eye care through improved parent awareness. We hope to encourage the use of verbal education and written preventative material, like flyers, brochures, and posters in the consulate waiting room. In doing so, we hope VDS staff members can establish greater awareness of the importance of pediatric vision screening among Mexican parents. In promoting greater awareness, we hope more Mexican parents will seek screening and referral services at the consulate, their child's school, or their child's primary care doctor.

***Project Significance:***

Our ultimate goal is to improve access to vision screening services and eye care among a very high-risk and marginalized population, thereby reducing preventable and reversible eye disease. By increasing awareness among staff members at Mexican consulates and among parents and by implementing pediatric vision screening within the Mexican consulates, we hope to increase the number of Mexican children who receive a vision screening. In doing so, we hope to improve detection of eye disease in Mexican children. With referral to local charity organizations, which often provide free eyeglasses and discounted care, we hope to reduce uncorrected refractive error, amblyopia, and other eye disease among Mexican children.

**References:**

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