Prevent Blindness®
Bringing Americans to Eye Care

2018 Focus on Eye Health National Summit:
Research to Impact

2018 Jenny Pomeroy Award for Excellence in Vision and Public Health

--- moderator ---

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Johns Hopkins University School-Based Eye Care Team

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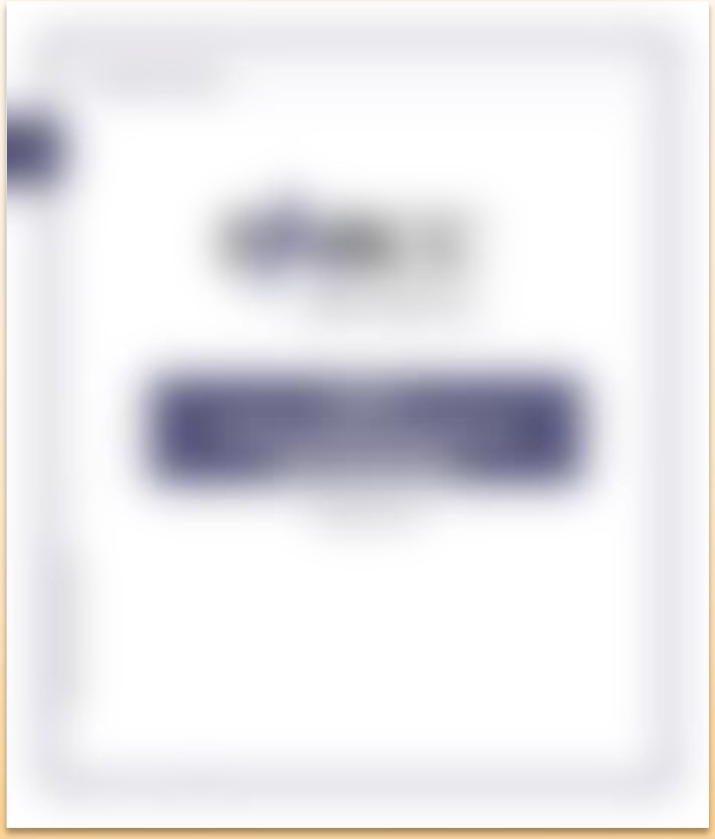
Center for Research and Reform in Education, Johns Hopkins University School of Education

Academic Consequences of Vision Impairment



A Simple Solution?

Recognizing Visual Impairment in Children

- Vision screening is the first indication of abnormal vision in 75% of kids < age 13
- 40 out of 50 states mandate vision screening for children
  - No set standard for state vision screening protocols
  - Marked variation in vision screening protocols by state

Maryland Vision Screening Mandate

Grade of first entry
(Pre-K or K)

First Grade

Eighth Grade

Disparities in Access to Eye Care

- Vision screenings
- Eye exams
- Eyeglass wear and retention

Concept of School-Based Care

- School-based health programs are a way to advance health equity
- Examples include:
  - Asthma
  - Oral health
  - Immunizations
  - Vision
- Better health = better educational outcomes

Baltimore Reading and Eye Disease Study (BREDS)

- School-based research program to study the impact of eyeglasses on reading achievement
- 12 Baltimore City Public Schools, 2014-2016
- Second and third grade students
- Vision and reading assessments at baseline, one year, and two years

BREDS Findings

- 33% of students reported previously worn glasses but only 6% still had them at the baseline assessment
- Most common ocular findings:
  - Refractive error (hypermetropia, myopia, and astigmatism)
  - Convergence insufficiency
- Glasses were prescribed for 194 participating students (61%)
- Children with uncorrected low-grade hypermetropia had lower scores on baseline reading assessments than children with emmetropia

- After receiving eyeglasses, students had improved:
  - Scores on individual reading assessments
  - Distance and near visual acuity that was sustained over the 2-year study period
- Over 80% of students wore their eyeglasses consistently and reported they were able to see and read more easily
- The factor most predictive of students wearing their eyeglasses was parents and/or teachers reminding them to do so

Vision for Baltimore (V4B)

VISION FOR BALTIMORE

- Launched in Fall 2016
- 152 schools serving all Baltimore City Public School students in preK – 8th grade

HEALTH DEPARTMENT · CITY OF BALTIMORE · 1797 · BALTIMORE MARYLAND

BALTIMORE CITY PUBLIC SCHOOLS

Vision To Learn
Focus on the Future

JOHNS HOPKINS UNIVERSITY & MEDICINE

WARBY PARKER

V4B Process

- Vision screenings for every student
- Mobile vision clinic evaluation at school
- Eyeglasses prescribed and dispensed at school
- Eyeglasses replaced as needed
- Long-term monitoring of eyeglasses use

V4B Research Study

- Evaluate the impact of school-based eye care on academic performance
- Develop school-based strategies to promote eyeglasses wear and to reduce the rate of lost or broken glasses
- Conduct a cost analysis of the short-term and predicted long-term economic impact of expanded vision screening and school-based vision care
- Perform ongoing process evaluation to identify implementation barriers and create a model of sustainability

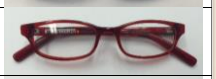
V4B Vision Screening Protocol

- Performed by BCHD vision screening teams
- Screening components:
  - Distance visual acuity
  - Stereo E test
  - Cover test
  - Autorefraction
- A vision screening failure is defined as not passing ≥ 1 element of the assessment.

V4B Eye Exam Protocol

- Conducted by Vision To Learn optometrists
- Vision exam includes:
  - Distance visual acuity
  - Cover testing
  - Auto-refraction
  - Manifest refraction
  - Near acuity (based on symptoms)
- Slit lamp or penlight assessment of external/anterior segment
- Non-dilated fundus exam (optic nerve and macula) with direct or indirect ophthalmoscopy

Warby Parker Eyeglasses

Frame Style	Color	School Recommendation	Size	Photo
Miller 100	Black	Elementary School	45-15-130	
Miller 607	Sky Blue	Elementary School	45-15-130	
Miller 609	Crystal Red	Elementary School	45-15-130	
Coy 352	Navy Blue	Mostly elementary, some middle school	46-14-130	
Rizzo 651	Light Pink	Mostly elementary, some middle school	46-17-145	
King 100	Black	Mostly elementary, some middle school	48-16-130	
King 651	Light Pink	Mostly elementary, some middle school	48-16-130	
Cook 352	Navy Blue	Mostly elementary, some middle school	48-17-135	
Ruthie 989	Rose	Both elementary and middle school	50-16-135	
Young 161	Dark Grey	Both elementary and middle school	50-16-135	

Students Served to Date

	Students Screened	Failed Vision Screening	Eye Exams Completed	Eyeglasses Prescribed	Referrals for Further Care
Year 1 (9/2016 – 8/2017)	17,614	5,596	2,920	2,349	146
Year 2 (9/2017 – present)	17,464	6,172	3,121	2,385	59
Total	35,078	11,768	6,041	4,734	205

** Current as of June 11, 2018*

School Vision Advocates (SVAs)

Educational Programs for Teachers

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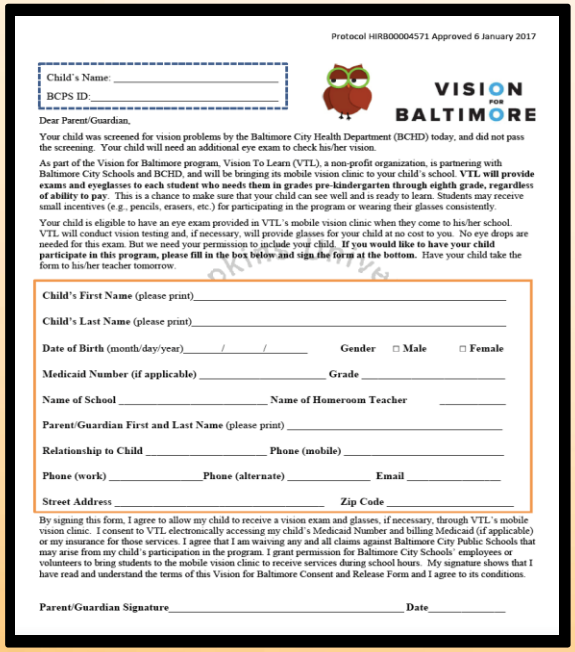
Educational Programs for Students

Incentives Program

- Target of 80% consent form return within 1 week
  - School supplies
  - All staff entered into raffle for $95 Warby Parker gift card



Protocol HIR00004571 Approved 6 January 2017

Child's Name: _____
BCPS ID: _____

VISION FOR BALTIMORE

Dear Parent/Guardian,

Your child was screened for vision problems by the Baltimore City Health Department (BCHD) today, and did not pass the screening. Your child will need an additional eye exam to check his/her vision.

As part of the Vision for Baltimore program, Vision To Learn (VTL), a non-profit organization, is partnering with Baltimore City Schools and BCHD, and will be bringing its mobile vision clinic to your child's school. **VTL will provide exams and eyeglasses to each student who needs them in grades pre-kindergarten through eighth grade, regardless of ability to pay.** This is a chance to make sure that your child can see well and is ready to learn. Students may receive small incentives (e.g., pencils, erasers, etc.) for participating in the program or wearing their glasses consistently.

Your child is eligible to have an eye exam provided in VTL's mobile vision clinic when they come to his/her school. VTL will conduct vision testing and, if necessary, will provide glasses for your child at no cost to you. No eye drops are needed for this exam. But we need your permission to include your child. **If you would like to have your child participate in this program, please fill in the box below and sign the form at the bottom.** Have your child take the form to his/her teacher tomorrow.

Child's First Name (please print)_____

Child's Last Name (please print)_____

Date of Birth (month/day/year)_____/_____/_____ **Gender** ☐ **Male** ☐ **Female**

Medicaid Number (if applicable) _____ **Grade** _____

Name of School _____ **Name of Homeroom Teacher** _____

Parent/Guardian First and Last Name (please print) _____

Relationship to Child _____ **Phone (mobile)** _____

Phone (work) _____ **Phone (alternate)** _____ **Email** _____

Street Address _____ **Zip Code** _____

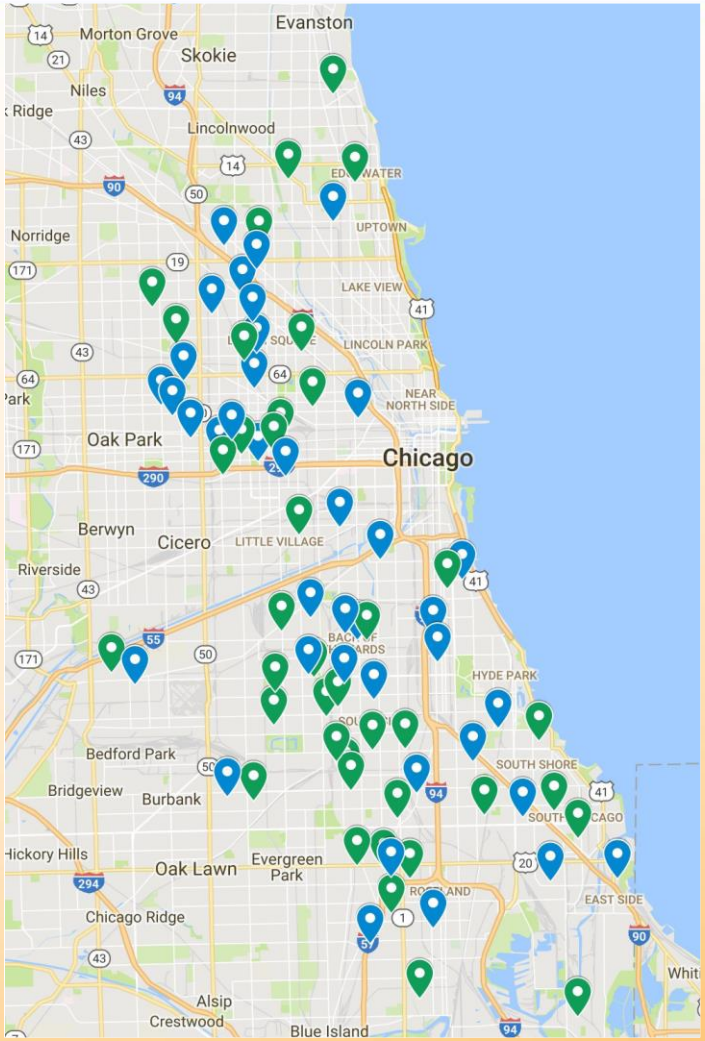
By signing this form, I agree to allow my child to receive a vision exam and glasses, if necessary, through VTL's mobile vision clinic. I consent to VTL electronically accessing my child's Medicaid Number and billing Medicaid (if applicable) or my insurance for those services. I agree that I am waiving any and all claims against Baltimore City Public Schools that may arise from my child's participation in the program. I grant permission for Baltimore City Schools' employees or volunteers to bring students to the mobile vision clinic to receive services during school hours. My signature shows that I have read and understand the terms of this Vision for Baltimore Consent and Release Form and I agree to its conditions.

Parent/Guardian Signature_____ **Date**_____

Vision for Chicago (V4C)

- 2-year research study launched in Fall 2017
- 80 schools enrolled
- Builds upon existing success of Chicago Vision Exam Program
  - Illinois Eye Institute (IEI) at Princeton Vision Clinic
  - Tropical Optical
  - Ageless Eye Care

BLUE: Intervention schools
GREEN: Control schools



V4C Study Objectives

Vision for Chicago
Wear your glasses in your classes!

1. Launch school-based educational campaigns and professional development programs to increase the use of school-based vision program and retention of eyeglasses
2. Evaluate the impact of eyeglasses on academic performance

V4C Intervention

Vision for Chicago
Wear your glasses in your classes!

School vision advocates work directly with school staff in intervention schools

Educational programs

- Signs of vision impairment
- Accessing school-based care
- Importance of wearing eyeglasses
- Maintenance / care of eyeglasses

Monitoring programs

- Eyeglasses counts and classroom observations
- Working with teachers to develop monitoring systems

Program Distinctions

	Baltimore	Chicago
Student population served	Students who fail a V4B vision screening assessment	Students who fail a CPS vision screening assessment plus students referred by parents/ teachers
Refraction technique	Non-cycloplegic	Cycloplegic
Retinal and posterior segment exam	Non-dilated	Dilated
Location	Mobile vision clinic at school	1) School-based 2) Princeton Vision Clinic (students travel to/from via school-bus)

Challenges and Opportunities in School-Based Vision Care

- Building and maintaining trust with stakeholders
- Designing health education campaigns to increase awareness and utilization
- Changing the school culture to include vision as part of the educational mission
- Creating cost-effective models of school-based vision care delivery
- Optimizing communication in the doctor-patient-parent-teacher relationship
- Developing best practice patterns and connecting children with complex health needs to community providers
- Integrating health information into existing school technology platforms

Conclusions

- There is a substantial unmet need for pediatric vision care, especially in high poverty communities
- School-based delivery of eye care is an intervention strategy to increase access to care
  - Recognition of a vision problem and provision of eyeglasses is the first step
  - Programs must also create an alliance between health professionals, educators, parents and students
- Future research should be directed towards understanding implementation barriers and creating sustainable models of school-based eye care.

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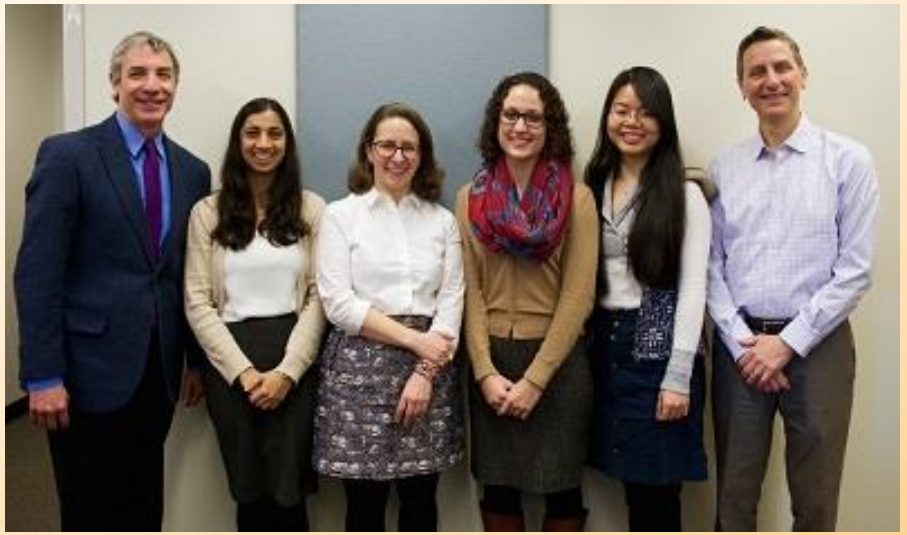
THANK YOU

to the Johns Hopkins team and program partners!



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