Advancing Vision Health
Design, Action, Impact

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Research Intern UMN
MD5M KidSight Foundation, Inc engaged MPS in instrument based screening.

Initial strategy:
- Implement Instrument based screening
- Use Leo’s and preceptor volunteers

2016

Chart based vision screening HOTV

2017

Scale instrument based screening at all screening locations.

Nurse professional development project analyzing 3 months of year over year data and disseminate results in non-profit, health care and public jurisdiction and districts.

2018

Purchase second instrument screener and use in most settings.

UMN Research Intern Deployed. Convene local early childhood vision health task force. Apply to NCCVEH BVT.

Strategy alignment across task force agencies.

2019

Implemented 3rd instrument based screener.

Spread instrument screening protocol to MPS ECSE Program.

Policy work with MN Dept of Health to develop vision health plan for state.

UMN Research Intern support local task force and participate in NCCVEH BVT.
Minneapolis Early Childhood Vision Health Taskforce

- Children's Minnesota
- PICA Head Start
- MPS
- MD|m Lions Kidsight Foundation INC
- American Academy of Pediatrics
- Child and Teen Checkup
- City of MPLS Youth Coordinating Board
- University of Minnesota Center for Excellence
- Philips Eye Institute
- Hennepin County Public Health and Human Services
Minnesota Infrastructure:
A universal vision health touchpoint before kindergarten

Minnesota Early Childhood Screening Statute 121A.12

- https://www.revisor.mn.gov/statutes/cite/121A.17
- Mandated
- Universal
- 3-5 year olds.
- Only Minnesota surveillance data on vision screening, exams and treatment

Greater Twin Cities United Way Screen @ 3

- Expanded the National Academy of State Health Policy Assuring Better Child Health and Development. Initiative.
- Schools-Healthcare Systems-Early Care and Education-Philanthropy.
- Coordinating systems, realizing results.
ABCD School District Work Flow Diagram

Birth to 5 Central Intake

Set up by Family Call

Online

ABCD Network Inbound Referrals

Schedule Appointments

Reschedules

No Show

Screening Appointment Reminders

Family Check-in

No concerns Receiving Services Decline

Re-screen

Exit Interview

Developmental Screening

Paper Forms

Online Forms

Health Screening

Guardian

Guardian

Interview

Referral Needs

Education

Health

Family Supports

Ensure family connections to programs and services

Pass screening with concerns

Follow Through

Communication and Feedback
Minneapolis Public Schools First Stop Data Summary
SY 2018-2019

- 4269 Children
- 1567 Screen @ 3
- 2945 Children of Color
- 1218 English Learners
- 2049 School Readiness Referrals (3-6 years).
- 2415 Early Intervention Referrals (Birth-6).
- 8796 Follow through contacts
- 2760 Confirmed links to services
- 149 Health and community partners including philanthropy and public funding.
Year 1

- Coordinate cross-department meetings to present information from strategy development.
- Meeting planning and facilitation, process development, change strategy implementation, and improvement training.

Year 2

- Supports local improving vision health initiative.
- Data analysis of research project, conduct comparative analysis of data.
- Support the local and national vision health meetings and work.
Data Clean Up: Tracking Progress

Data review for all treatments accessed:

I looked at the 2017-18 nurse’s data including the first, second and third call. Below is a table of the most occurring treatments in vision care and most occurring nurses’ notes. The next step is to determine how many children received each of the treatments below.

<table>
<thead>
<tr>
<th>Most Occurring Treatments</th>
<th>Most Occurring Nurse’s Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child received glasses for astigmatism</td>
<td>Went to an eye doctor, astigmatism found in one or both eyes</td>
</tr>
<tr>
<td>Child had an eye exam and received glasses</td>
<td>Primary care referred to specialist and RX glasses</td>
</tr>
<tr>
<td>Passes vision and hearing at clinic</td>
<td>Insurance lost or dropped. Family going to a free clinic</td>
</tr>
<tr>
<td>Child had an eye exam, no refractive or deviation error found</td>
<td>A few cases of no photo screening report available</td>
</tr>
<tr>
<td>Child had an exam but no need for glasses</td>
<td>Parent reports appointment scheduled</td>
</tr>
<tr>
<td>Glasses optional. Recheck in 1-2 years</td>
<td>Normal vision, no glasses needed</td>
</tr>
<tr>
<td>Prescribed glasses for lazy eye</td>
<td>LVM, letter</td>
</tr>
<tr>
<td>New glasses RX for amblyopia r eye</td>
<td>Unable to contact</td>
</tr>
</tbody>
</table>
Public Health System Driver Diagram to Increase Detection and Diagnosis of Vision Impairment in Children Aged 5 Years and Younger

**AIM**
By 2018, increase by 20% over 2011-2012 levels the proportion of children aged 5 years and younger who receive vision screening and diagnosis in 5 states according to the National Survey of Children’s Health measure.

**Goals**
- Strengthen statewide partnerships and coordination among key stakeholders in children’s vision and eye health
- Increase access to and utilization of vision health services in hard-to-reach communities
- Increase early detection and treatment of vision problems
- Establish state-level surveillance
- Implement vision health system measures of accountability

**Primary Drivers**
- Families and professionals understand and endorse the importance and urgency of vision in child development
- Broad Access to Preventive Care and Treatment
- Infrastructure and capacity supports optimal outcomes
- Data Monitoring and Population-level Surveillance

**Secondary Drivers**
- Increase knowledge of role of vision in overall child development
- Outreach to high-risk and underserved groups
- Professionals in key stakeholder groups have the knowledge necessary to address vision health as a population health issue
- Engage families and caregivers regarding importance of vision health and support their adoption of these behaviors
- Diverse care settings, affordability
- Increase awareness and use of insurance coverage for vision services
- Increase diversity of professionals providing evidence-based vision screening methodology
- Increase and strengthen publicly funded vision coverage
- Increase proportion of primary care and public health settings that include an integrated vision health program
- Professional Education, Partnerships, Planning
- Integrate vision health education and O/D/MD students into clinic settings with primary care and allied-health professionals
- Primary care providers and other stakeholder groups have the skills to support a comprehensive vision system including: vision assessments, screenings, prevention, eye health education, referral and follow-up
- Increase stakeholder engagement and skill building to ensure capacity and improve vision health outcomes
- Establish capacity at the primary care and public health levels to collect vision data (including screening through treatment outcome data) in a secure data collection system
- Implement comprehensive systems and policies that lead to improvements in children’s vision health
- Surveillance, Analysis, Feedback
- Identify high-risk populations with comorbidities
- Identify risk and protective factors at the individual, family, school, and community levels
- Integrate uniform vision screening and outcome data collection standards
- Track population-level vision health status

*The term “professionals” is inclusive of pediatric and allied health, public health, early education, childcare, early intervention, nursing, and state administrative professions.*
## Improving Vision Health of Minneapolis Children B-5

### Aim
By March 1, 2021, we will increase vision and eye health in the City of Minneapolis through increasing by 50% the number of children ages birth to 5 who receive vision screening, eye exams, follow through support and access to medical treatment.

### Key Drivers

#### Early Identification
- Design community-wide vision screening strategies where children are: child care, library, WIC clinic, parks
- Increase instrument-based vision screening in preschool population.
- Develop strategies to engage families of children pre 5 who are most underserved
- Incorporate culturally specific, language-appropriate communication (e.g., bilingual, culturally specific staff)
- Identify family barriers to screening, exams, and follow-through, engage in problem-solving barriers and build bridges to new services.

#### Access to Health Care
- Provide vision screening at places families and children frequent; engage families most underserved
- Improve partner capacity to improve and support systems change to improve timely access
- Design reliable cross-sector processes in outreach, referral, and follow-through.
- Coordinate strategies with Birth-5 Central Intake and Region 11 IEIC.

#### Family Supports
- Identify lost cost opportunities for services and treatment (e.g., eye exams, treatment, therapies).
- Target services, referrals, follow-through for families who need most support to access resources.
- Follow through with families after first contact to assure links to services, support new referrals.

#### Data and Tracking
- Establish data sharing portal to reduce duplication of vision screening
- Establish shared process and outcome measures disaggregated by race and stratified by age.
- Utilize database/spreadsheet/software for tracking based on established tracking interval
- Communicate referral outcomes and status with referring providers (links to services)

#### Partnerships and Policy
- Advocate for the development of comprehensive state vision health plan.
- Create cross-sector partnerships for immediate access to screening, eye exams, and treatment — no wait lists.
- Connect with families in regard to follow-up services (referrals, resources, outcomes post-screening).
- Communicate screening results/outcomes to clinics, community providers, and other sources.
- Build capacity to meet demand from increased screening and referrals through cross-sector alignment.
- Address billing reimbursement for instrument-based screening and care coordination across settings; cooperate with DHS to bill for services for those without IEP or IFSP.

#### Communication
- Target messaging regarding what/why/how/when of vision screening and benefits for families and providers.
- Meet with partners (clinics, community partners) to examine current processes & workflow and identify areas of improvement.
- Develop workable cross-sector data sharing while advocating for the development of long-term data sharing portal.
Impact
Minneapolis Public School 2017 Wallchart & 2018 Instrument Positive Screen Comparison

# POSITIVE SCREENS

<table>
<thead>
<tr>
<th>MONTH</th>
<th>HOTV</th>
<th>INSTRUMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>22</td>
<td>42</td>
</tr>
<tr>
<td>August</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>September</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>October</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>November</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>December</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>January</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
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<td>March</td>
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<td>April</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>May</td>
<td>6</td>
<td>61</td>
</tr>
<tr>
<td>June</td>
<td>22</td>
<td>22</td>
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</tbody>
</table>
Contact Frequency Distribution

SY 2017-2018

- # of Contacts
  - 178
  - 116
  - 102
  - 22
  - 5
# Comparison

Positive Screen, Exams, Diagnosis, Treatment

<table>
<thead>
<tr>
<th>INSTRUMENT</th>
<th>HOTV</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>189</td>
<td>768</td>
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<tr>
<td></td>
<td>28</td>
<td>206</td>
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<tr>
<td></td>
<td>35</td>
<td>169</td>
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<tr>
<td></td>
<td>43</td>
<td>142</td>
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<tr>
<td></td>
<td>122</td>
<td>324</td>
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</table>

<table>
<thead>
<tr>
<th>HOTV</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Contacts</td>
<td>189</td>
</tr>
<tr>
<td>Sum of Exams</td>
<td>28</td>
</tr>
<tr>
<td>Sum of Treatment</td>
<td>35</td>
</tr>
<tr>
<td>Sum of Diagnosis</td>
<td>43</td>
</tr>
<tr>
<td>Sum of Positive Vision</td>
<td>122</td>
</tr>
<tr>
<td>INSTRUMENT VS CHART % CHANGE</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>REFERRALS</td>
<td>265%</td>
</tr>
<tr>
<td>DIAGNOSIS</td>
<td>330%</td>
</tr>
<tr>
<td>EXAMS</td>
<td>735%</td>
</tr>
<tr>
<td>TREATMENT</td>
<td>482%</td>
</tr>
<tr>
<td>CONTACTS</td>
<td>406%</td>
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<table>
<thead>
<tr>
<th>TREATMENT/POSITIVE SCREEN</th>
<th>PERCENTAGE</th>
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<tbody>
<tr>
<td>2017 CHART SCREENING</td>
<td>28%</td>
</tr>
<tr>
<td>2018-INSTRUMENT SCREEN</td>
<td>52%</td>
</tr>
</tbody>
</table>
## Independent Samples Test

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-Test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
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<tr>
<td>Equal variances assumed</td>
<td>5.478</td>
<td>.020</td>
<td>-2.297</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-2.215</td>
<td>203.123</td>
<td>.028</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>54.096</td>
<td>.000</td>
<td>6.493</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>4.521</td>
<td>38.360</td>
<td>.000</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>7.764</td>
<td>.006</td>
<td>-1.583</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-1.629</td>
<td>94.882</td>
<td>.107</td>
</tr>
<tr>
<td>Exam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>6.744</td>
<td>.011</td>
<td>2.586</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>2.242</td>
<td>37.637</td>
<td>.031</td>
</tr>
<tr>
<td>Zipcode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.363</td>
<td>.244</td>
<td>.078</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>.127</td>
<td>322.033</td>
<td>.899</td>
</tr>
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</table>
Comparing Results
MPS Positive Screens and Completed Screen Health
## Follow Through Costs

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Overall FT Cost</th>
<th>Vision Health FT Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative - .1 FTE</td>
<td>15,000.00</td>
<td>5000.00</td>
</tr>
<tr>
<td>Staffing - .4 Licensed School Nurse, .5 FT Coordinator, .5 Bilingual Staff</td>
<td>195,000.00</td>
<td>60,000.00</td>
</tr>
<tr>
<td>Information Systems Integration &amp; supplies</td>
<td>30,000.00</td>
<td>10,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$240,000.00</strong></td>
<td><strong>$75,000.00</strong></td>
</tr>
</tbody>
</table>
Considerations

POLICY
• Require state surveillance and vision health plans: start by expanding state cohort, give guidance on vision health advisory boards to governors.
• Design state and local grants that focus on cross sector systems change, coordination and Improvement to advance population level vision health outcomes.
• Promote development of comprehensive system of vision care that align program and population measures, public, non profit & philanthropy
• Cultural representation in leadership and decision making allows differentiation to meet needs of specific population.

PRACTICE
• Strengthen guidance on instrument based screening; minimally for young children, English learners and people with disability in health and education settings.
• Advance follow through capacity in health and education, support direct funding for care coordination through state Medicaid funding.
Acknowledgements

Many thanks to the MPS First Stop and Screen @ 3 team who passionately work to support families in accessing resources that support child well-being and have been key to advancing vision health of Minneapolis preschoolers. Thank you to our partners who are part of the local vision health taskforce aimed at advancing a comprehensive system for vision health work across the city, county and state.

**MPS Screen @ 3 Team:**

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Wanda Felder  
Bridie Musser  
Charletta Mosley  
Ker Vue  
Mavis Gomez  
Delphie Sorenson  
Patti Dowdle  
Zuleika Billington  
Jane McGuire  
Bianca Zarders  
Kathy Cromie

**Partners:**

Hennepin Healthcare  
Southside Community Clinic  
Park Nicollet Health System  
PICA Head Start  
Children’s Minnesota  
Sharing and Caring Hands  
Allina Health  
MD5M KidsSight Foundation  
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