Eyes on Equity: Pediatric Optometric Care and Public Health Challenges

pediatric eye care—Maryland's experience, COVID lessons, and what we can do better.

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Why Pediatric Vision Care Matters

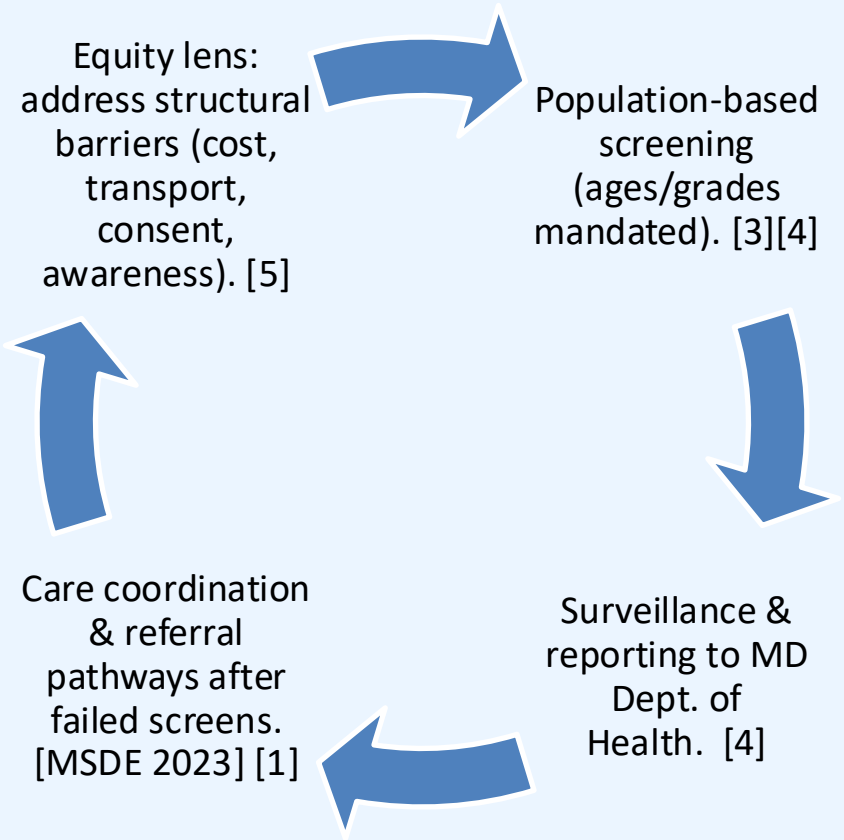
Vision isn't just about eyesight—it's about learning, attention, and development. Catching issues early prevents amblyopia and other lifelong problems. [MSDE 2023: Vision Screening Guidelines, [1]

Kids with undiagnosed vision problems struggle academically. Studies show that simply giving glasses in schools can significantly boost learning. [JHU/Vision for Baltimore study] [2]

Schools give us a unique public-health entry point: we can reach nearly all kids, screen efficiently, and connect families to care. [MSDE 2023] [1]

Sources: MSDE Vision Screening Guidelines 2023; JHU Vision for Baltimore Study (JAMA Ophthalmology 2021)

Public Health Framework for Pediatric Vision Care



- Interventions: school-based exams, on-site eyeglasses, replacements, and follow-up.
- Data-driven improvement via reporting & evaluation.
- Partnerships: schools, health depts, optometry/ophthalmology, community orgs.
- Family education & insurance enrollment assistance (Medicaid/EPSDT). [MSDE 2023] [1]

Sources: Md. Educ. §7-404; COMAR 13A.05.05.07; MSDE 2023 Guidelines; Antonio-Aguirre et al. 2023

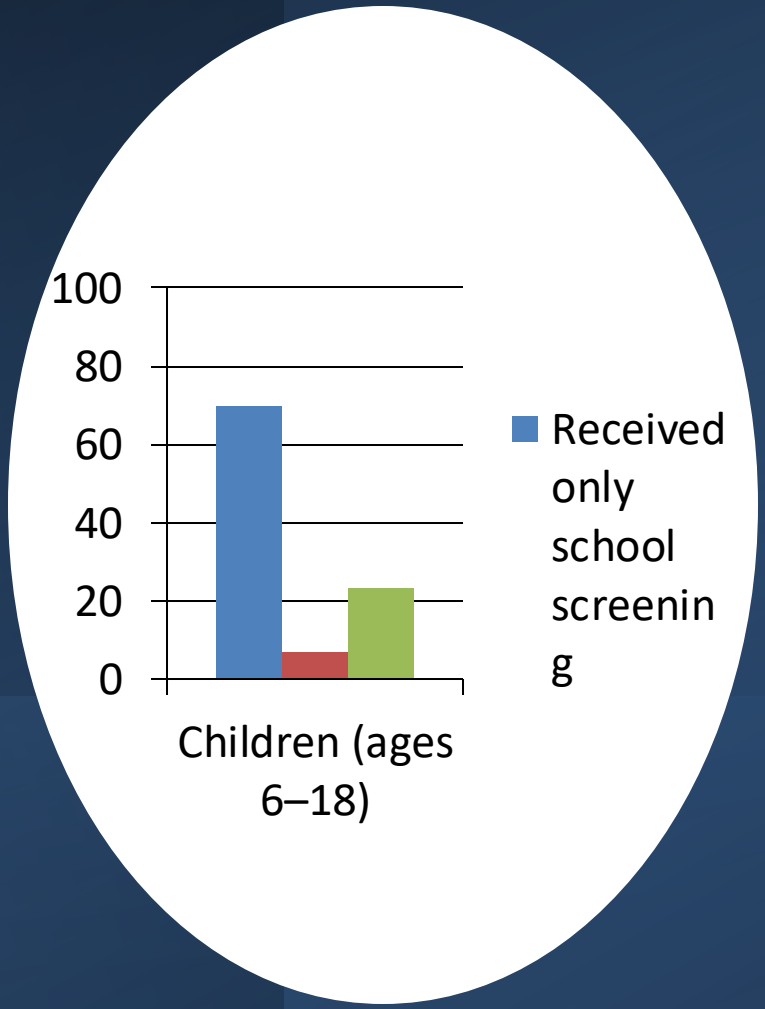
AOA Clinical Exam Guidelines

AOA recommends:

- First eye exam at 6–12 months (InfantSEE® no-cost option)
- Preschool (ages 3–5): at least one exam
- School-age (6–18): before 1st grade and annually thereafter

Source: American Optometric Association, Clinical Practice Guidelines 2022; InfantSEE program

Screenings vs Comprehensive Exams (U.S. Children)



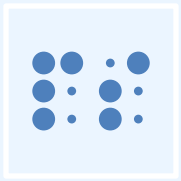
Source: AOA Health Policy Institute; Astorino Eye Care summary 2023

AOA Guidance on Device Use

AOA recommends:

- 20-20-20 rule for digital eye strain (every 20 minutes, 20 seconds, 20 feet away)

- Preschool: ≤2 hrs/day screen time



- Older children: emphasize ergonomics, lighting, screen distance

Sources: AOA Device Advice Campaign; VisionMonday 2021

Maryland Policy & Access: Screening Mandates

Mandated screenings + follow-up form the backbone of Maryland's pediatric vision public health approach.

- State law requires vision screening when a student enters a school system, in Grade 1, and in Grade 8 or 9. [3]
- Results must be recorded, parents notified on failures, and data reported to local boards/health departments—and to Maryland Department of Health. [4]
- Students may be exempt for religious objections or with evidence of a recent comprehensive exam. [1]

Source: Md. Educ. §7-404; COMAR 13A.05.05.07; MSDE 2023 Guidelines

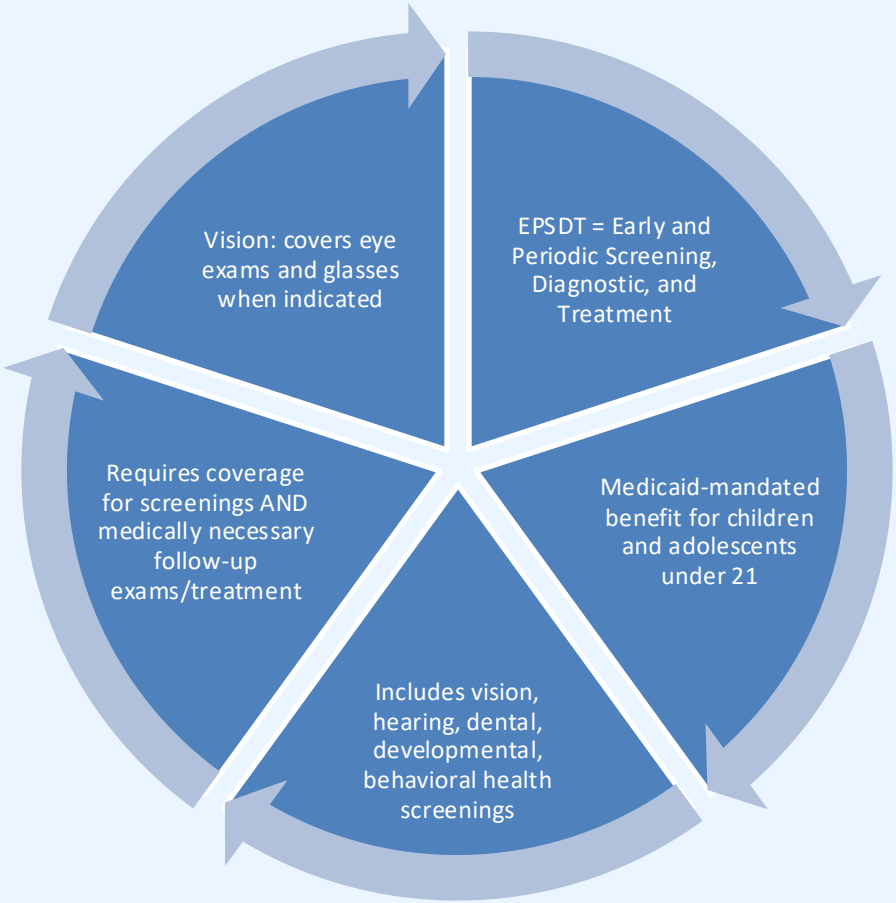
Maryland Access: Medicaid/EPSDT Vision Benefits

For enrollees <21, Maryland MCOs must cover: at least one eye exam every year (in addition to school screenings), eyeglasses (≥1 pair/year; more if lost/broken/not appropriate), and medically necessary contacts. [6]

This coverage reduces cost barriers and supports timely treatment after school screening referral.

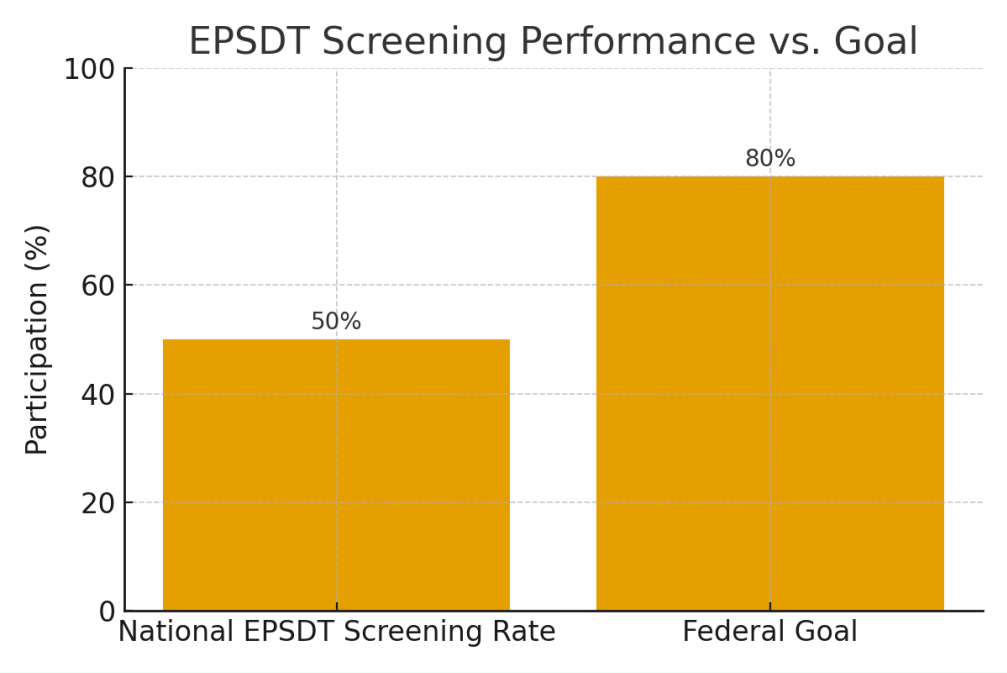
Source: COMAR 10.67.06.14 (EPSDT Vision Benefits)

What is EPSDT?



Sources: Centers for Medicare & Medicaid Services (CMS), EPSDT Overview; Maryland Medicaid EPSDT Program Report 2023

EPSDT Coverage: Why Universal Access Isn't Enough



Only ~50% of eligible children receive an EPSDT screening nationwide
Falls short of 80% goal established by federal mandate
Participation drops further among adolescents
Missed screening = missed referral = missed comprehensive vision care

Sources: MACPAC 2023; Georgetown CCF 2016; HealthLaw.org 2021

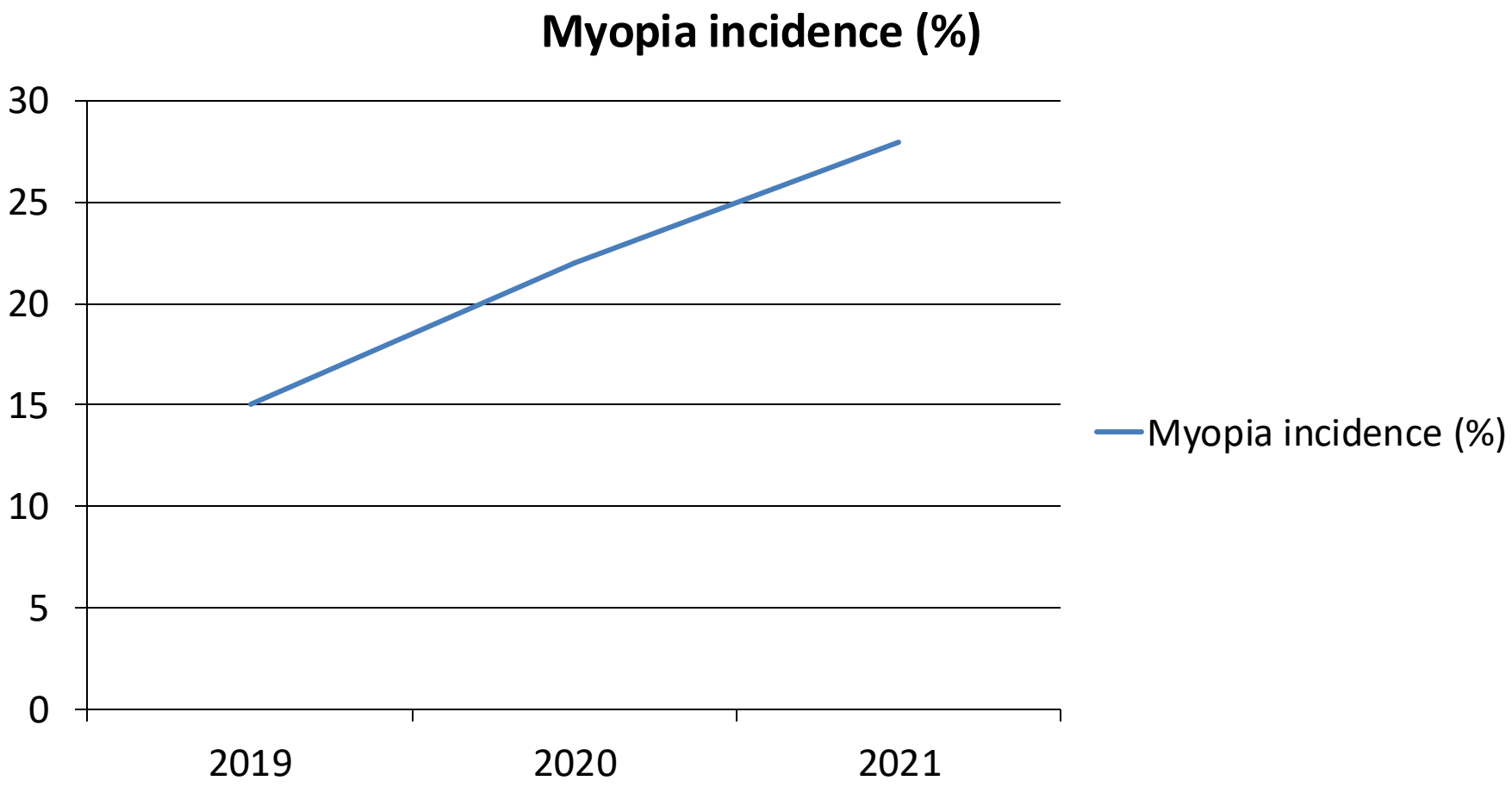
COVID-19 Pandemic Impacts on Children's Vision

School-based screenings were disrupted in 2020–2021, creating backlogs and missed detections. [Antonio-Aguirre 2022; MSDE/MDH 2021 guidance] [9][10]

Studies observed increased myopia incidence/progression associated with home confinement and more near work/screen time. [JAMA Ophthalmology 2021] [11]

Public health response: adapt screening protocols, prioritize catch-up screens, and integrate safety measures.

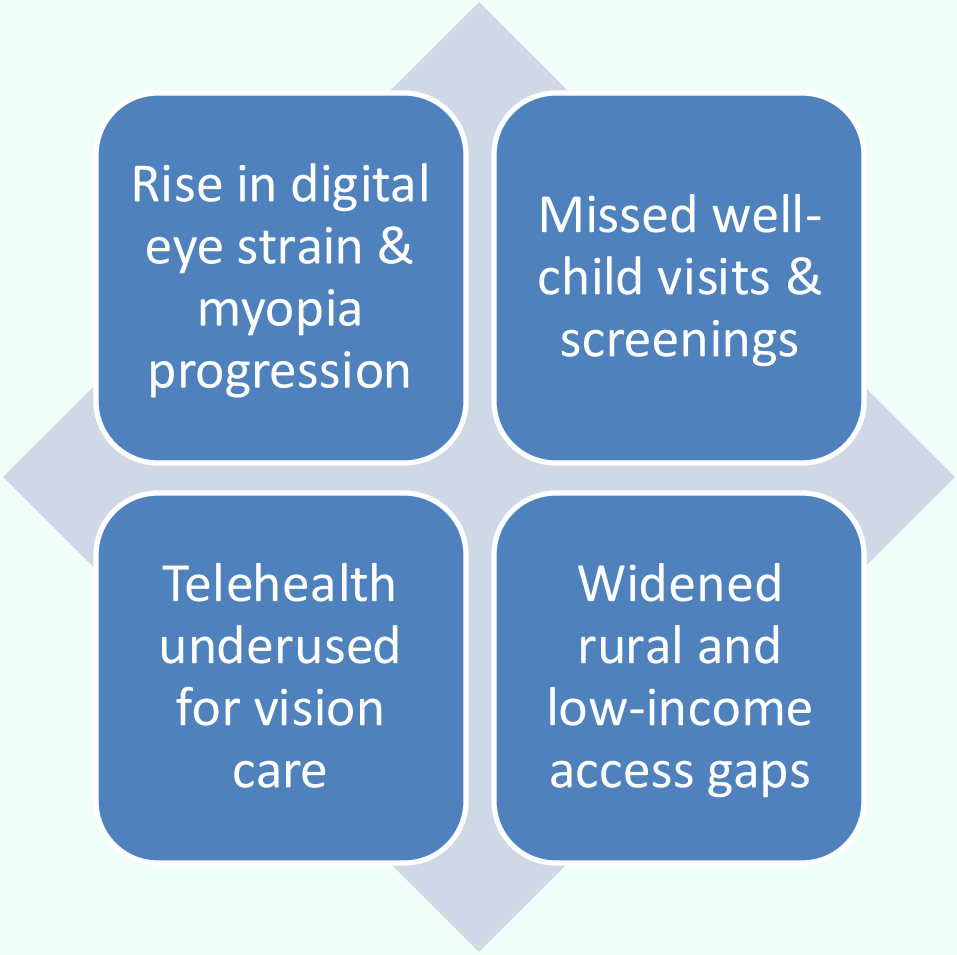
Sources: Antonio-Aguirre 2022; MSDE/MDH Guidance 2021; Wang et al., JAMA Ophthalmology 2021



Rising Myopia During COVID (Illustrative Data)

Sources: Wang et al., JAMA Ophthalmology 2021; AOA public

COVID-19 as a Case Study



Sources: AOA 2021 COVID-19 Pediatric Impact Report; CDC 2021

COVID-19 in Maryland: Screening Adaptations & Recovery

MDH/MSDE (Mar 25, 2021) issued guidance to continue mandated screening with safety modifications (e.g., instrument-based screening/photoscreeners, distancing, PPE), and to prioritize students who missed screens. [MDH/MSDE 2021] [10]

School systems resumed/expanded services with layered COVID mitigation [BCHD/City Schools updates] [7][12]

Source: MDH/MSDE Recommendations for Mandated Screenings, Mar 25, 2021

Maryland Programs: Vision for Baltimore (V4B)

Citywide, school-based program (Pre-K–8) delivering screenings, on-site exams, and free eyeglasses. [BCHD/JHU] [7][8]

Impact to date: >64,000 students screened, >11,000 exams, and >10,000 pairs of eyeglasses distributed across 137 schools (as of 2022). [JHU School of Education] [8]

Randomized/controlled evidence shows eyeglasses boosted reading & math scores. [JHU press release; JAMA Ophthalmology] [2]

Sources: BCHD; JHU School of Education; JHU Press Release 2021 (JAMA Ophthalmology)

Equity, Barriers, and Opportunities

1

Barriers: consent form return, transportation, cost, awareness, language access. [V4B program literature] [5][12]

2

School-based delivery reduces friction (on-site exams, free glasses, replacements). [V4B/JHU] [8]

3

Prioritize underserved groups, ensure culturally/linguistically appropriate outreach, and track follow-up completion.

Sources: Antonio-Aguirre et al. 2023; Vision for Baltimore literature

Recommendations

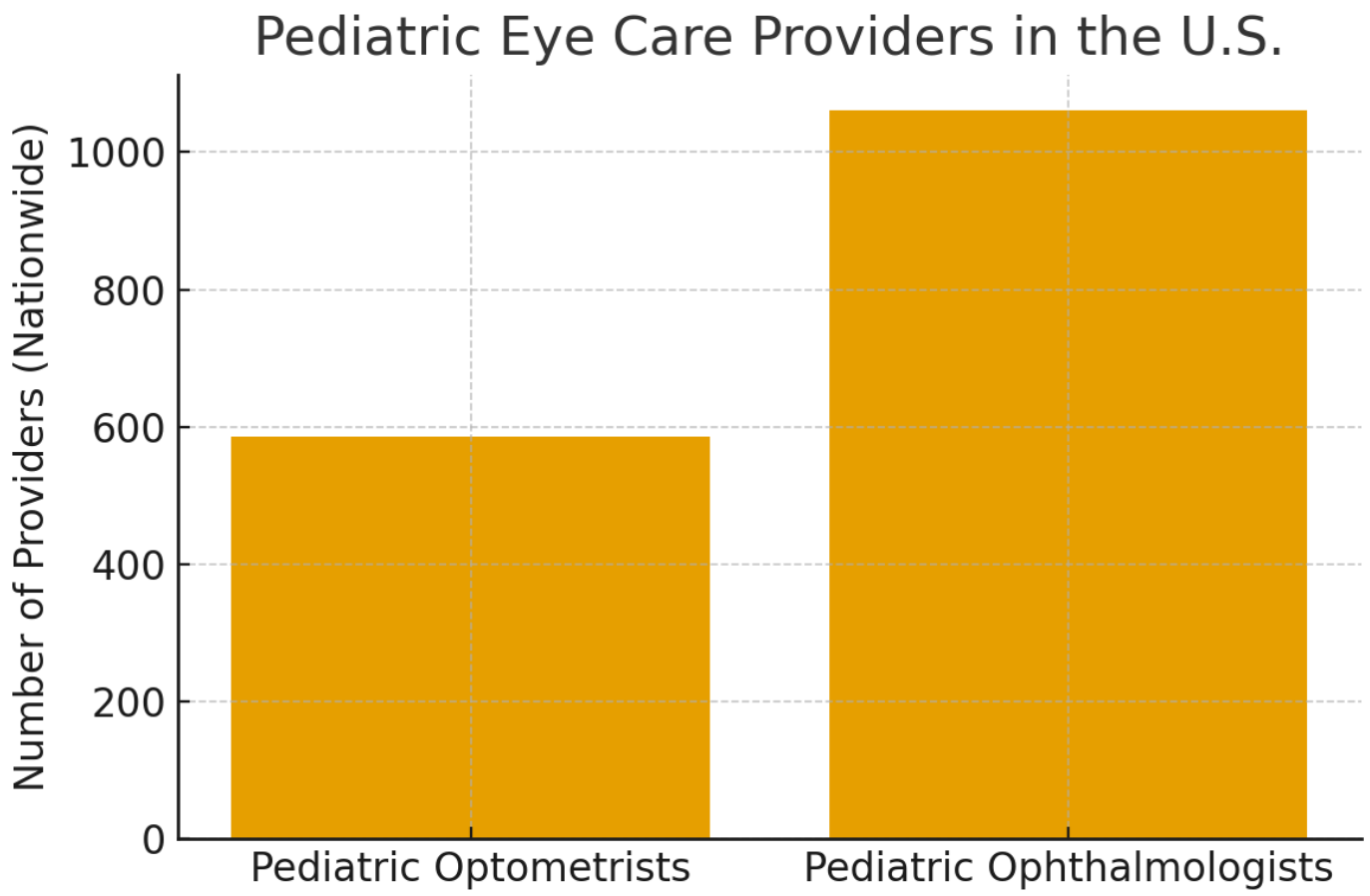
Catch	Leverage	Close	Reporting	Expand	Family Support	Campaign	Sustain Funding:
Catch-up Screening: Audit missed 2020–2022 cohorts; run targeted make-up clinics.	Leverage Photo-screening for younger/less testable students per MSDE guidance. [1][10]	Close the Loop: Robust referral tracking; partner with MCOs to confirm treatment uptake.	Data Reporting: Standardize dashboards to MDH; monitor disparities (race/ethnicity, school, insurance).	Expand School-Based Services: Mobile clinics; guaranteed free/replacement glasses. [8]	Medicaid enrollment help; plain-language education materials. [1][6]	Outdoor Time Campaigns to counter myopia risk; screen-time hygiene education. [11]	Blend state/local, philanthropy, and private partners (e.g., Warby Parker/Vision To Learn). [7][8]

Sources: MSDE Guidelines 2023; COMAR 10.67.06.14; Vision for Baltimore program materials

Pediatric ODs vs Pediatric Ophthalmologists—Numbers & Geography

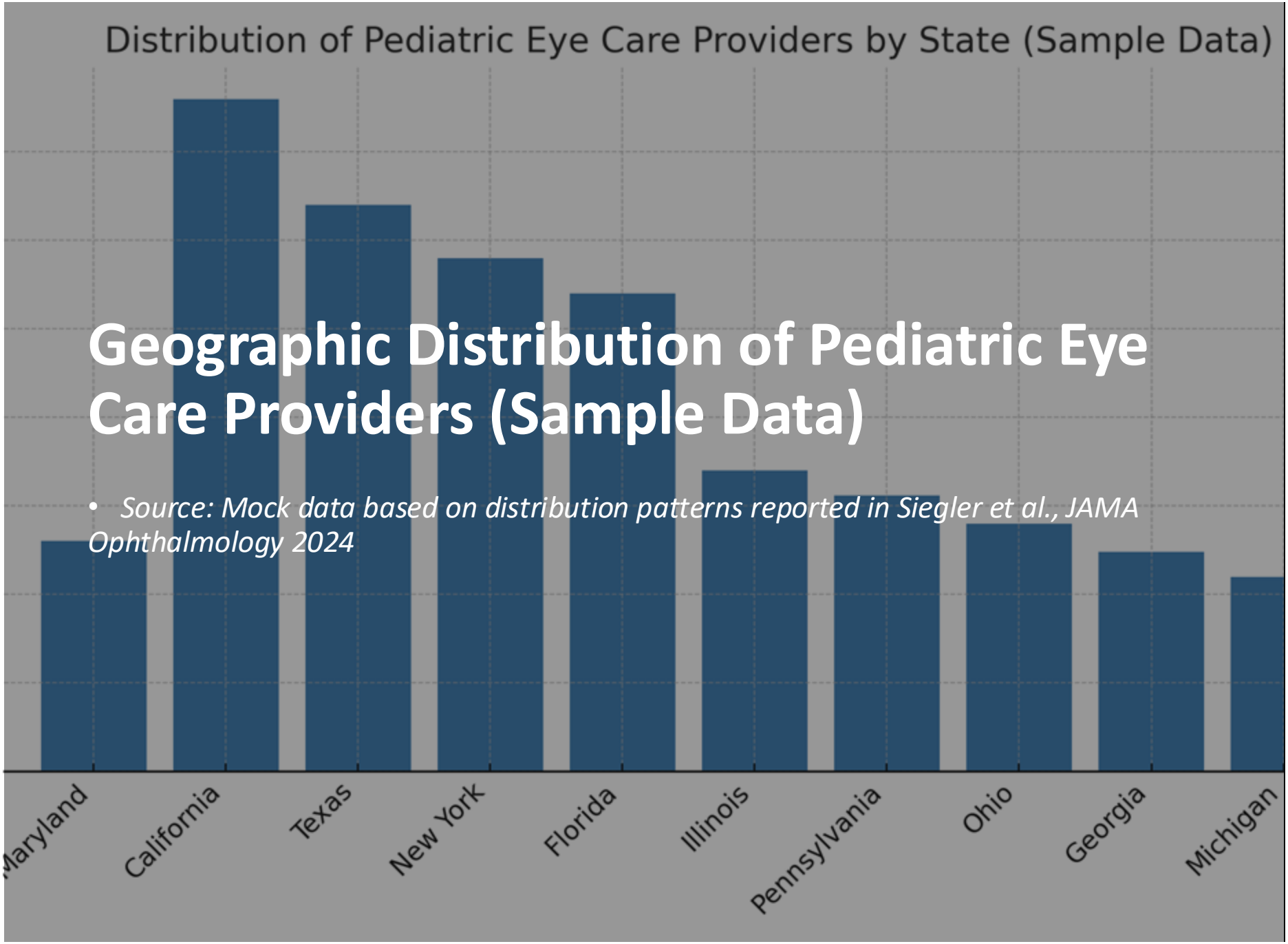
- Pediatric Optometrists: 586 nationwide (302 female, ~51.5%)
- Pediatric Ophthalmologists: 1,060 nationwide (590 male, ~55.7%)
- Counties with ≥1 provider: 6.5% had an optometrist vs 9.7% had an ophthalmologist
- In 2,834 counties without pediatric ophthalmologists, 96.4% also lacked pediatric optometrists
- Per million children: Ophthalmologists 3.3 vs Optometrists 2.5 nationally

Sources: Siegler et al., JAMA Ophthalmology 2024; PubMed PMID: 38602687; AOA public health communications



Pediatric Eye Care Workforce Comparison

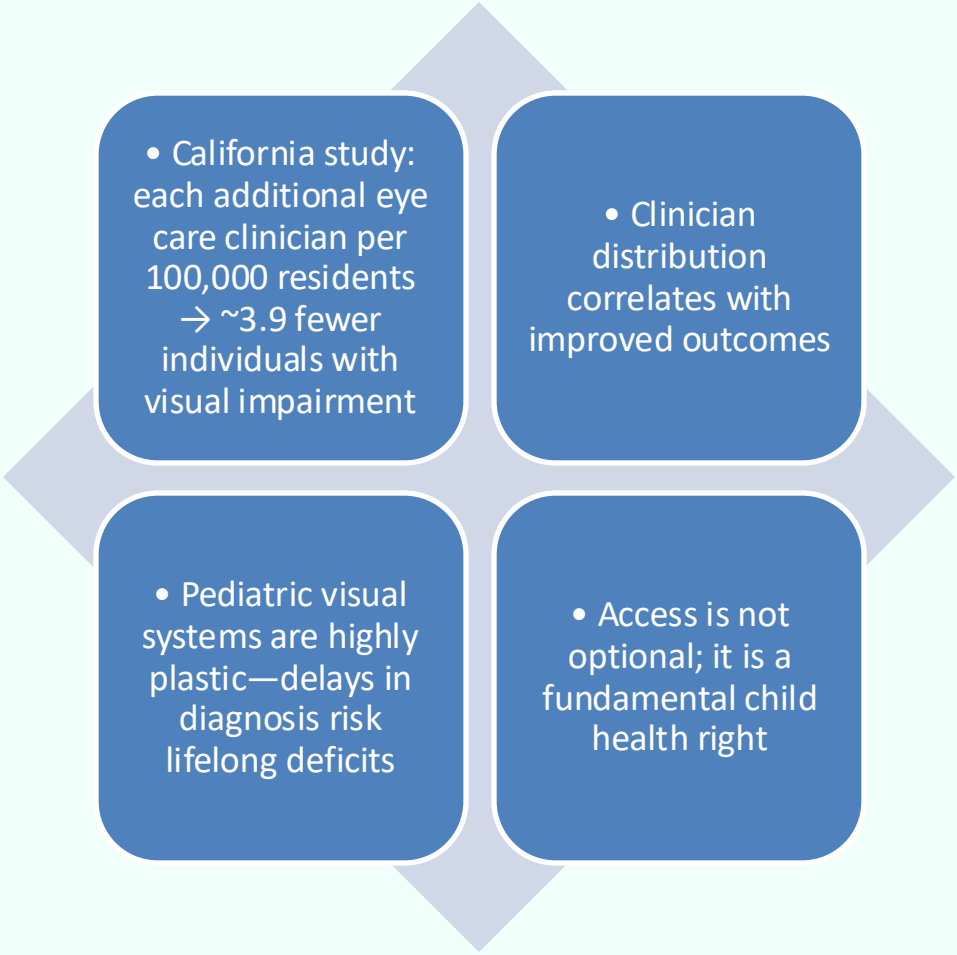
Sources: Siegler et al., JAMA Ophthalmology 2024; PubMed PMID: 38602687



Geographic Distribution of Pediatric Eye Care Providers (Sample Data)

- *Source: Mock data based on distribution patterns reported in Siegler et al., JAMA Ophthalmology 2024*

Why This Shortage Matters—Outcomes & Equity



Source: Khanna et al., Population-based cross-sectional study, California, PMC9073655 (2022)

The Clinical-Public Health Bridge

- Individual encounters reflect systemic barriers
- Missed screenings → missed early intervention
- Public health informs what we see in the chair
- Our role: not just treating eyes, but advocating for access

Maryland Pediatric Access Snapshot

EPSDT requires vision screening → but follow-up often incomplete

Pediatric optometrists concentrated in urban areas (Baltimore, suburbs)

Gaps in Western MD and Eastern Shore

Medicaid barriers: limited coverage & provider availability

Sources: Maryland Medicaid EPSDT Report 2023; Maryland Optometric Association

Policy Opportunities for Improving Access

MEDICAID ENFORCEMENT: ENSURE SCREENINGS + FOLLOW-UPS ARE REIMBURSED AND TRACKED

INCENTIVES: LOAN REPAYMENT, GRANTS FOR RURAL PEDIATRIC OPTOMETRY PRACTICE

SCHOOL-BASED PARTNERSHIPS: FUND OPTOMETRY-LED IN-SCHOOL EXAMS

TELE-OPTOMETRY: EXPAND PEDIATRIC COVERAGE POST-COVID

DATA COLLECTION: REQUIRE PEDIATRIC VISION METRICS IN STATE HEALTH REPORTING

Sources: AOA 2022 Pediatric Policy Recommendations; HRSA Rural Health Data

Clinical Takeaways

Public health inequities walk into our exam rooms daily
Early vision care = education, development, lifelong outcomes
Pediatric optometrists must be both clinicians and advocates
Policy change is part of clinical care

Closing Call-to-Action

- “Clear vision is equity.”
- Join forces: clinicians, schools, public health, policymakers
- Invest in early, equitable pediatric vision care

References (1/2)

- 1. [1] Maryland State Dept. of Education. Vision Screening Guidelines (June 2023).
- 2. [2] Johns Hopkins University. 'Eyeglasses for Students Boost Academic Performance' (Sep 23, 2021).
- 3. [3] Md. Education Article §7-404 (Hearing & Vision Screening for Students).
- 4. [4] COMAR 13A.05.05.07 (School Health Services Standards—reporting & follow-up).
- 5. [5] Antonio-Aguirre B, et al. Addressing Health Disparities in Pediatric Eye Care (2023).
- 6. [6] COMAR 10.67.06.14 (Maryland Medicaid Managed Care—Vision Benefits).

References (2/2)

- 1. [7] Baltimore City Health Department. Vision for Baltimore (program overview).
- 2. [8] JHU School of Education: Vision for Baltimore (impact metrics).
- 3. [9] Antonio-Aguirre B, et al. Missed Vision Screenings for School-Age Children During COVID-19 (2022).
- 4. [10] MDH/MSDE. Recommendations for Mandated Hearing & Vision Screening During COVID-19 (Mar 25, 2021).
- 5. [11] Wang J, et al. Myopia Surge During Home Confinement (JAMA Ophthalmology, 2021).
- 6. [12] Baltimore City Schools. 'Thousands of Students See Success Thanks to Free Eye Exams and Glasses' (Dec 1, 2023).