Closing the Gap in Pediatric Eye Care:

A Network Adequacy Study

ASU
College of Health Solutions
Arizona State University

Eyes On Learning
Advancing Children's Vision Health

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CHARITABLE TRUST

Table of Contents

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Executive Summary

Though strides have been made in recognizing the importance of children's vision and eye care in whole body health, and inclusion and expansion of these services through public and private health plans, gaps persist in utilization, access and outcomes. Vision screening and eye exams are crucial not only for improving eyesight, but also for discovering diseases early and enabling children's educational success. Despite the overwhelming evidence supporting the importance of regular and adequate vision and eye care, disparities persist in access to care and outcomes, resulting in often preventable detriments to children's physical, developmental and educational well-being that can have negative effects and diminished opportunities over a lifetime. Low income children and children of color disproportionately experience these gaps in care and access, resulting in harmful disparities and exacerbating many other negative social determinants of health experienced by these communities.

In an effort to help close the gap in access, utilization rates and disparities in vision and eye care for children in Arizona, researchers at Arizona State University's College of Health Solutions conducted a direct test of network adequacy among eye care providers in the state, practicing optometrists and ophthalmologists. The network was tested through a "secret shopper" phone survey. This survey tested various components of children's access to vision and eye care, including reliability of provider list information, appointment availability, wait times for next available appointments, flexibility of timing for appointments, ability to contact, insurance plans accepted, availability of bilingual services, ages served, and referral requirements, at the practice level for children covered by both commercial health insurance and Medicaid (AHCCCS).

R E S U L T S | *Summary of study results:*

- **Region of practice:** Higher concentration of providers in more urban counties of Maricopa (69.6%) and Pima (18.2%). Rural counties like Apache have a single provider and Greenlee and LaPaz have zero providers.

- **Ages Served:** Around 41.0% of providers in the state serve children 5 years and younger and 61.3% providers serve children 18 years and younger. There was varying provider availability and wait times based on age. Counties like Apache, Cochise, Gila and Santa Cruz have only 1 or no providers serving young children.

- **Patient Intake:** Over three-fourths of practices were accepting new patients across both insurance types. A majority of practices (over 90%) did not require referrals from primary care providers (PCPs). Over 40% of practices offer online scheduling options.

- **Insurance Limitations:** As high as 74.0% of practices outright denied accepting common insurance coverage plans, especially Arizona's Medicaid program, the Arizona Health Care Cost Containment System (AHCCCS). No providers accept AHCCCS, in Navajo County from a total of 9 practicing providers. In certain instances (<10%), a medical referral from primary care providers (PCPs) was required for insurance coverage.

- **Language Limitations:** Despite having a high Hispanic population in Arizona, only around 50% of providers were bilingual or offered bilingual staff. Additionally, the bilingual staff were not always available for appointments which created longer wait times.

- **Appointment wait time:** Average wait time for the next available appointment was 13 days for both insurance types. No significant differences were observed in appointment wait times between callers on AHCCCS and commercial health insurance. At least 26 practices were in direct violation of AHCCCS Contractors Manual (ACOM) Policy 417, which requires that networks ensure routine appointments are available within 45 days of request. Rural counties of Gila, Mohave, Santa Cruz, Yavapai and Yuma had an average wait time of greater than 4 weeks.

- **Challenges in Scheduling Appointments:** In some cases, facilities were not able to be reached (39.5%). Some calls were truncated due to requested information, particularly insurance related details (30.7%). Long wait times were offered to see providers or callers were kept on hold for a long period of time (20.2%).

- **Ease in Scheduling Appointments:** Some calls (11.1%) revealed warm and friendly office staff, willing to answer questions and accommodative of requests. Around 45% of practices offered weekend and after-hours appointments.

- **Other Challenges:** Some calls (10.2%) revealed rude experiences for the caller by office staff. Other calls reported high out of pocket costs ($50-$550) or highly specialized facilities that do not perform routine eye exams.

- **Provider Limitations:** In some cases (6.4%), calls revealed inconsistent provider availability. Providers were on vacation, retired, or practices were in between hiring a provider.

RECOMMENDATIONS

Below is a summary of evidence-based recommendations for providers, policymakers, and advocates to improve and sustain an adequate and accessible provider network for children's vision and eye care. Details for each recommendation are provided in the full report.

- **Increasing Provider Availability in Rural Areas:** Potential patients should have access to the eye care they need and a provider shortage, especially in rural counties, can exacerbate vision loss and eye care issues in already medically underserved areas.

- **Serving All Ages:** Providers and practices holding themselves out to serve children should include all ages of pediatric patients so that families can meet Centers for Disease Control and Prevention (CDC) recommended screening guidelines (newborn to 3 months, 6 months to 1 year, 3 years, 5 years, and every two years in school age)[11, 12] and if needed, utilize modified screeners, tools, optotypes, and formats for pre-reading children per National Center for Children's Vision and Eye Health guidance.

- **Accepting All Insurance Carriers:** All providers and practices holding themselves out to serve children and accept insurance coverage for those services should accept all vision and eye care plans, especially those serving vulnerable and low income children such as AHCCCS. On a systems level, it is essential to ease the process and costs associated to enable practices of all sizes and bargaining power to serve this community of vulnerable children.

- **Increasing Language Services:** Providers holding themselves out to serve children in Arizona should offer consistent language translation services. Professional organizations and thought leaders in vision and eye care endorse bilingual clinics to meet the needs of a practice's community.

- **Easing Barriers to Scheduling:** Providers holding themselves out to serve children in Arizona should make efforts to ensure minimal barriers to scheduling appointments for services. Barriers include inability to connect with a scheduler, long telephone hold times, and long wait times for next available appointments.

- **Improving Patient-Friendly Interactions:** Providers holding themselves out to serve children in Arizona should ensure that potential patients are not subjected to rude behavior, or incivility, by practice staff answering calls.

- **Minimizing Out of Pocket Costs:** Providers holding themselves out to serve children in Arizona should take steps to minimize out of pocket expenses via noninsurance costs or high co-pays for patients, especially for basic screening and eye care services.

- **Improving Availability of Providers:** Providers holding themselves out to serve children in Arizona should, to the best of their ability, ensure a robust and consistent workforce to meet the needs of the communities in which they practice.

The remainder of this report contains a snapshot of the state of vision and eye care for children in Arizona in the context of network adequacy. A full description of survey methodology, results, and recommendations follow.

Background

Moving towards a more comprehensive and holistic health care model requires recognition of all dimensions of an individual's health that contribute to their wellness and longevity. Historically, the American health care system has treated some aspects of physical health care, such as vision and dental, as somehow separate to the detriment of patient care, access and outcomes. Vision care, though representing a fairly basic and vital function-eyesight, is often covered by separate health insurance, if at all, and comprehensive coverage is out of reach for many individuals and families. Though strides have been made in including and expanding vision care through public and private health plans, disparities persist in utilization, access and outcomes, especially for the most vulnerable in our society.
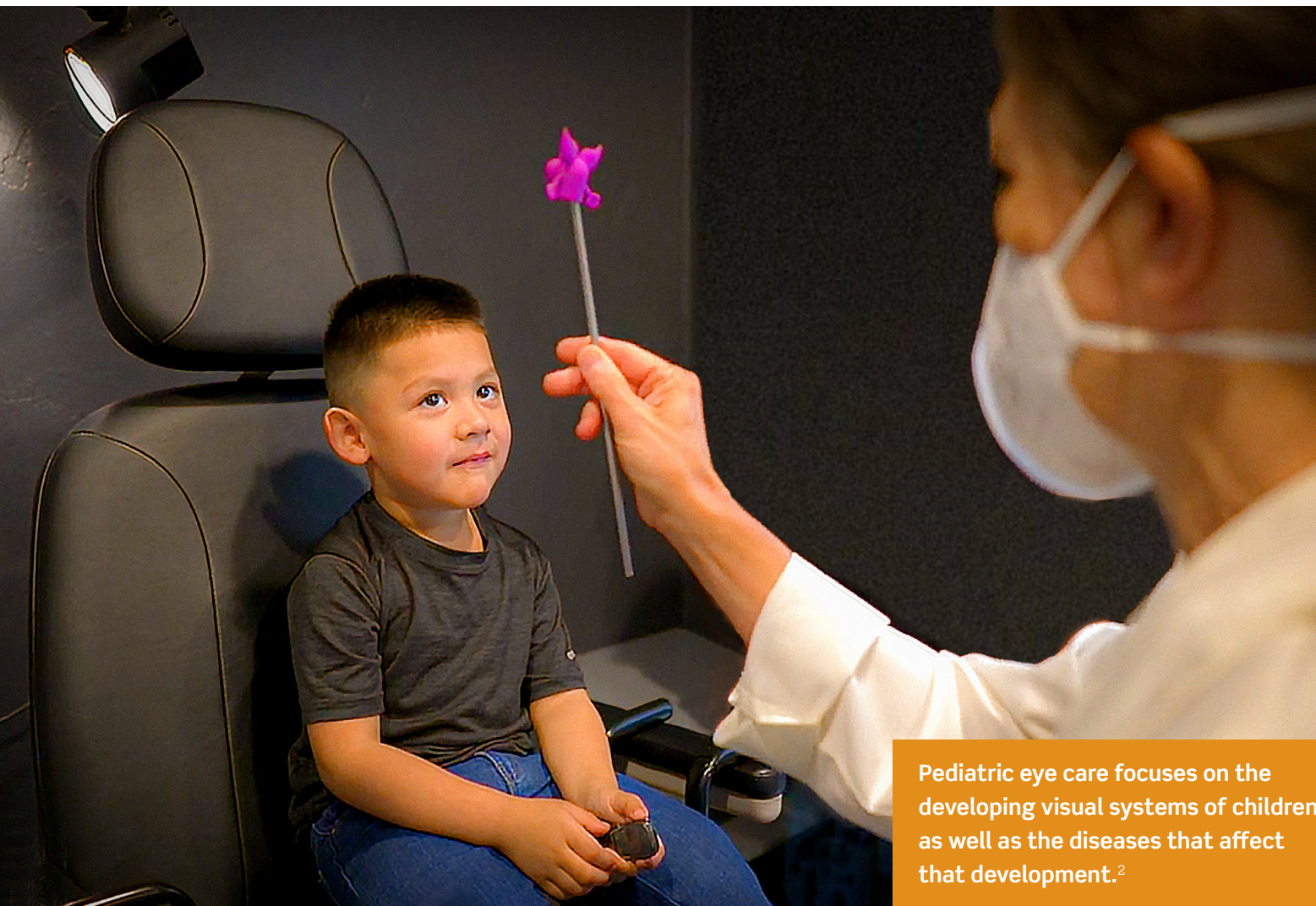
Pediatric eye care focuses on the developing visual systems of children, as well as the diseases that affect that development.[2]

According to the American Academy of Ophthalmology, primary eye care can be considered "the provision of appropriate, accessible, and affordable care that meets patients' eye care needs in a comprehensive and competent manner."[1] Specifically, pediatric eye care focuses on the developing visual systems of children, as well as the diseases that affect that development. There are three main providers of eye care: ophthalmologists, optometrists, and opticians.[2] Ophthalmologists are either a Doctor of Medicine (MD) or a Doctor of Osteopathy (DO) who are qualified to give comprehensive eye care, including vision services, eye exams, eye surgery, and diagnosis and treatment of vision diseases or complications. Optometrists are considered a Doctor of Optometry (OD), which means that they can examine both internal and external eye structures. However, the main difference between optometrists and ophthalmologists is that optometrists are not trained to perform surgery or to manage all eye diseases. Lastly, opticians are healthcare professionals who assist optometrists and ophthalmologists in patient care.

Importance of Eye Care for Children

Vision screening and eye exams are crucial not only for improving eyesight, but also for discovering diseases early. Routine and recommended vision screenings play a vital role in identifying potential signs of vision challenges and serve as important opportunities to recommend referral for further evaluation. Healthy People 2030 reveals that many individuals do not receive the adequate exams or care for vision health, therefore allowing some diseases to be diagnosed later or less often, such as diabetic retinopathy, glaucoma, or age- related macular degeneration

in adulthood.[3] In children, vision problems are one of the most common disabling conditions in childhood.[4] Having proper vision in childhood impacts a variety of physical, social, and cognitive developmental factors. Vision challenges that are not appropriately addressed have an impact on a child's ability to learn, meet appropriate educational benchmarks and career opportunities, interact with peers and can even lead to partial or permanent vision loss.[5] Studies show that unaddressed vision challenges are associated with lower early literacy performance and pre-reading skills in preschool and kindergarten, and is a strong predictor of school performance throughout a child's K-12 education.[6]

According to the National Center for Children's Vision and Eye Health, up to 28% of school-age children have vision problems that may impact their ability to develop, learn, and acquire literacy and reading skills.[8] Approximately 1 in 20 preschool age children experience challenges with their vision, yet only 39% of preschool children have had their vision checked.[4,7,9] Aside from the human costs, the financial impact of children's vision issues is substantial, with reports finding costs up to $10 billion annually related to children's vision loss.[10] These estimates include factors such as costs associated with medical care, vision aids, special education, caregiving, vision screening programs, federal assistance, and quality of life.[5,10]

As such, early detection of vision challenges is critical in identifying and addressing vision loss in children. The CDC recommends that a child should be screened at between newborn to 3 months, 6 months to 1 year, 3 years,

and 5 years.[11] As the children reach school age, they should have eye exams every two years.[12] The CDC also states some common signs of vision loss: closing or covering one eye, squirting, complaining of blurriness, or blinking more than usual.[11]

Disparities in Eye Care Nationally

Differences in eye care and vision health nationally have been noted along a variety of factors and social determinants of health including race/ethnicity, gender, age, and geography, representing a disparity not only in outcomes but also, access to care.[13] Children from higher income families

> **Vision challenges that are appropriately addressed have an impact on a child's ability to learn, meet appropriate educational benchmarks and career opportunities, interact with peers and can even lead to partial or permanent vision loss.[5]**

and white children are more likely than their lower income, and racial and ethnic minority counterparts to have been diagnosed with eye or vision disorders, indicating improved access to diagnostic and screening services.[14] Among those with diagnosed eye challenges, black children and those from families earning below 400% of the Federal Poverty Level, have been shown to have lower health care costs and expenditures than their white and higher-resourced counterparts, yet experience twice the rate of expenditures associated with emergency eye care, representing a likely challenge in access to preventive and regular office centered care as

needed.[14] Similarly, more than one-third of Mexican American and non-Hispanic black adolescents experience inadequately corrected refractive disorder.[15]

Low income children, even those connected with other public support programs, appear to have additional barriers to vision care as 1 in 5 enrolled in Head Start have been reported to have a vision disorder.[16] A study of 5th grade children that were told to receive corrective eyeglasses showed that 14% did not receive new or replacement devices in the last year due to parental affordability.[17] Under the Affordable Care Act (ACA), vision care is included in all new small group and individual health insurance coverage plans with effective dates of January 2014 or later, both on and off the ACA marketplace.[18] This coverage generally includes eye exams, vision screening, and glasses coverage but specific services will vary state to state based on state benchmark plans. In the majority of states, that plan includes one annual eye exam and one pair of glasses, including frames. It is important to note that while this is an important step in the right direction, "covered" does not necessarily mean at no cost to the policy holder as there still may be copays, deductibles, and coinsurance depending on the details of the plan.[18] Despite the documented existence of disparities, gaps in knowledge exist as to cause and which social determinants have the greatest impact on contributing to these disparities.

Disparities in Eye Care in Arizona

Children in Arizona experience high levels of health disparities and inequities as 15% live in high poverty areas, well above the national average of 9%, and as recently as 2019. Arizona ranks 48th in the United States for children's health insurance coverage as 9% of the state's children were uninsured, which is much higher than the 6% average nationally.[19] The need for public health insurance is significant in Arizona, as demonstrated by the fact that nearly 30% of the state is enrolled in Medicaid, or Arizona Health Care Cost Containment System (AHCCCS). Approximately 49% of Arizona children are covered by either AHCCCS or the state Children's Health Insurance Program, KidsCare. Vision services for all AHCCCS members under the age of 21 include regular eye exams and vision screenings, prescription eyeglasses, and repairs or replacements of broken or lost eyeglasses.[20] Up until recently, the state of Arizona did not require vision screening for children, a policy that only changed in 2019.[21] The recent law mandates that a trained school official or volunteer administer vision screenings to children upon entering school, when being considered for special education, when a teacher has recommended the screening and if students are not reading at grade level by third grade.[22] As such, health insurance coverage and access is a critical social determinant in the state, especially for the most vulnerable children.

Regarding education, Arizona sees a higher rate of 4th and 8th grade children that are not proficient in reading compared to the national

Arizona children are less likely to have had their vision tested in the past two years. In the age range of 0-5, only 31.4% of Arizona children have received a recent vision screening. [8]

average.[23] As the state already experiences challenges in meeting the educational needs of many of its children, it is vital to address health related factors that can also impact a child's reading and educational opportunities.

In Arizona, more than 159,000 individuals state that they have severe difficulty seeing, even with glasses.[24] Specifically, Arizona children are less likely to have had their vision tested in the past two years. In the age range of 0-5, only 31.4% of Arizona children have received a recent vision screening, as compared to the national average of 38.9%. Between the ages of 6 and 11, 84.4% of Arizona children have had up to date vision testing, as compared to the national average of 85.85%, and for children between the ages of 12 and 17, 76.9% are up to date, compared to the national average of 83%.[8]

Inadequate networks can prevent pediatric patients from being able to

see the eye care providers that they trust and depend upon. Facilitating access to routine and recommended eye care screenings and services for children is imperative to achieve overall improved health outcomes, educational achievements, and reduce health disparities.

If we are to truly meet our duty to children in Arizona, especially those at higher risk for poorer access and outcomes, we must ensure that they receive the screening and care for proper vision. Doing so requires not only insurance coverage, but adequate access to providers listed in coverage networks. As we know, enrollment in an insurance plan has little worth if the providers in that insurance network do not treat children in need or provide necessary options for their families to access the care they provide. Testing the network of providers is a vital aspect of determining access, reducing disparities and ultimately, in improving equity for Arizona's children and families.

Our Study

The primary aim of the study was to determine where pediatric eye care network adequacy (capacity to provide local vision services for children) exists in Arizona and where there are gaps in eye care for children.

Access to care is defined by the extent services are accessible by region, type of care available (Optometry/Ophthalmology), payment accepted (insurance), ages served, and languages in which services are offered.

To improve our understanding of the gaps in eye care for children and how to reduce those gaps, the study team conducted a study of network adequacy among professionals holding themselves out as eye care providers and providing eye care services to children in Arizona. Study results are intended to be used by Eyes On Learning (EOL) coalition partners, the EOL Advisory Board, and other vision experts and advocates to inform the strategic activities of the Eyes On Learning coalition and target efforts to improve children's vision health in Arizona.

Methodology

Source of Data

This cross-sectional study was designed to test pediatric eye care network adequacy in the state of Arizona via a "secret shopper" phone survey conducted through calls to practices accepting AHCCCS and/or commercial health insurance. The dataset of practicing pediatric eye care providers in Arizona, i.e., ophthalmologist (MD and DO) and optometrist (OD) was built using existing databases from the Arizona Medical Board, Arizona Board of Optometry and Arizona Osteopathic Board. The raw data consisted of 56,178 MD, 12 DO, and 1323 OD (included data on expired/canceled licenses, out of state practices, and other specialties). These databases were further cleaned to include only those providers who are active, specializing in ophthalmology or optometry and licensed in the state of Arizona.

The phone survey tested various components of children's access to needed vision care through a standardized script of questions.

For the Doctor of Medicine (MD) data set, we identified a total of 18,187 physicians who were listed as "in state" and were either "active", "active with restrictions", or "active with limitations". Next, we included only those providers who specialized in ophthalmology or pediatric ophthalmology with a listed address in the state of Arizona. From there, we organized the data to consolidate physicians who worked in the same practice to one address. This process was repeated three times, resulting in a total of 316 physicians at 169 different practices. The data reflects licensed providers as of March 2022.

For the Doctor of Osteopathy (DO) dataset, the most recent provider list from the year 2019 received from the licensing board included 12 active DOs at 12 different practices in the state of Arizona specializing in ophthalmology.

The optometrist (OD) dataset from the Arizona Board of Optometry included a total of 1293 active ODs. From this we identified a total of 1077 ODs with listed addresses in the state of Arizona. However, a large number of providers recorded their residential addresses under the mailing address designation in the database. To accurately categorize providers licensed and practicing in the state of Arizona, we conducted an additional step where each provider name was manually entered into Google by three reviewers (CR, NV, RB). If the initial Google search results did not produce an optometrist, the OD's name, followed by "optometry" was inputted to refine the results. This step helped us identify each provider's official mailing address and practice location. Next, we sorted the providers by practice location to categorize the data at practice level (similar to MD dataset), which resulted in a total of 1036 ODs at 599 practices. The data reflects licensed providers as of March

2022. Additionally, the three datasets were further collapsed to identify a consolidated list of practices across all three provider types which resulted in a total of 703 unique practices in the state of Arizona. The Arizona State University (ASU) Institutional Review Board (IRB) approved and deemed this study as exempt.

Study Design

To adequately test the network adequacy of Arizona's pediatric vision care provider network, we contacted each individual practice (n=703) using a "secret shopper" phone survey. The phone survey tested various components of children's access to needed vision care through a standardized script of questions, including reliability of provider directory information, appointment availability at the practice level for children enrolled in AHCCCS and those with commercial health insurance,

language access, and compliance with regulatory standards. The variables of interest were: (i) time until the next available appointment, (ii) time of day for appointment, (iii) after hours and weekend appointment availability, (iv) if the practice was reached, (v) if the practice is accepting new patients, (vi) if the practice accepts a specific insurance plan, (vii) if the practice offers online booking options, (viii) if the practice offers bilingual services, (ix) region of practice, (x) ages served and (xi) if the patient needs referral from a primary care provider to be seen.

We contacted providers following a standardized script as part of the secret shopper methodology to schedule a routine appointment posing as parents of 10 and 3-year-old patients enrolled in either AHCCCS or commercial health plan.

A "secret shopper" study approach similar to that used here is one in which researchers simulate a potential patient seeking care to better understand the actual parameters and patient experience parameters in an area of health care delivery. A primary strength of this approach is that it provides valuable insight into the access related barriers that are difficult to measure through other investigative methods.[25] Existing literature supports the use of this research methodology especially for programs such as Medicaid (AHCCCS) as an ethical means of testing the compliance of public programs with government-enforced regulatory standards.[26-32] By using this approach, rather than customer surveys or structured interview phone calls, data can be collected more cost effectively, as well as more efficiently. Furthermore, the use of secret shoppers eliminates the "Hawthorne effect" also known as the way individuals alter their behavior when they are aware they are being observed.[30] The study therefore mimics a real-world situation when a patient is trying to schedule an appointment with a provider, effectively "testing" if the provider in fact offers care within the networks that they hold out to serve, while also examining the aforementioned layers of access. We found that the "secret shopper" methodology allowed us to collect sufficient data, even with limited resources.

AHCCCS contracts with seven integrated managed care organizations (MCOs) across three Geographic Service Areas (GSAs) in the state (Central, North, and South). For the purpose of portraying simulated patients for our survey, the most prominent MCO in terms of membership was chosen within each of the 3 GSAs- Central GSA: Mercy Care; North GSA: Care 1st; South GSA: Banner University Family Care. Blue Cross Blue Shield of Arizona and Avesis were the two commercial insurers simulated in the calls placed to MD/DOs and ODs respectively.

Survey Instrument
The standardized script (see appendix) used for the phone survey in this study was adapted from the works of Steinman et al. (2012) and Reddy et al. (2021), which was used to test network adequacies for pediatric psychiatric services and pediatric oral health services respectively.[29,30] The script included questions about scheduling an appointment with a vision care provider (appointment date, time of appointment, evening and weekend appointment availability), along with questions about needing a referral from another provider or scheduling an appointment with another clinician, e.g., optometrist (OD) first before seeing an ophthalmologist (MD/DO). In addition, we included questions concerning patient intake (accepting new patients, accepting specific insurance plans, and ages served). And, if unable to schedule an appointment, information of another provider practice. We also included questions on the languages in which services were offered and whether the practice allowed for online appointment scheduling. An online scheduling system is a web-based application or portal that allows enrollees to conveniently book their appointments through a web-enabled device. Further, to capture the most comprehensive information from each call, detailed field notes were recorded during our conversations with the scheduling staff. These field notes were a summary of the key takeaway points from our conversations with the office personnel.

To test the validity of the survey instrument, two research assistants made 100 phone calls each posing as a parent with AHCCCS and one with commercial health insurance. The script was further modified during the process based on caller experience and the specific needs of the study. For example, to prevent early termination of survey calls, questions regarding insurance acceptance were included towards the end, since the scheduling staff did not want to continue with the conversation if they did not accept the stated insurance. Further, if the

office asked for identifying information, the researchers explained that they were not ready to make an appointment. Rather, they just wanted to learn about the wait time and the scheduling process.

Calling Procedure

Five research assistants trained to pose as secret shoppers made 1406 calls to 703 practices between May 2022 to June 2022. Each provider practice received one call from a parent of a 10 and 3-year-old child enrolled in AHCCCS and one call from a parent of a 10 and 3-year-old child enrolled in a commercial health insurance plan wanting to schedule a routine eye exam. For each call, research assistants documented in the directory whether the practice could be reached. If the researcher was not able to reach the practice upon first call, they attempted to call again a week later for a maximum of two additional attempts after which the practice was excluded from further analysis. Calls to the same practice on behalf of a commercially insured and AHCCCS-insured patient were conducted one week apart and at different times to encounter different office staff members who fielded the calls. This was to ensure that the staff member does not recognize the script from previous calls. All calls were conducted during business hours from 9 am to 12 pm and 1 pm to 5 pm to allow for lunch break.

Through the data collection process, we identified additional practices that were excluded from further analysis. The reasons for exclusion were: (i) could not reach after three attempts, (ii) inactive provider, (iii) calls truncated due to requested identifying information, (iv) surgical centers and specialty centers, (v) invalid phone number or business address. This resulted in a total of 556 practices (79.09% of those cataloged) included on the AHCCCS side and 510 practices (72.55% of those cataloged) on the commercial health insurance side. The number of providers included for further analysis was reduced to a total of 1,194.

Data Analysis: Quantitative

The data collected through the secret shopper survey were compiled and analyzed. The outcome variable time until the next available appointment (wait time) was based on the number

> **Each provider practice received one call from a parent of a 10 and 3-year-old child enrolled in AHCCCS and one call from a parent of a 10 and 3-year-old child enrolled in a commercial health insurance plan wanting to schedule a routine eye exam.**

of days one had to wait for their appointment. This was calculated by subtracting the date of the appointment from the date when the call was made. The variable time of appointment was categorized into morning (before 12 pm), afternoon (before 5 pm) and evening (after 5 pm) based on the hour of appointment in the day.

First, descriptive statistics (mean, range, frequency) were calculated for the following metrics: time until next appointment, time of day for appointment, after hours and weekend appointment availability, acceptance of new patients, acceptance of specific insurance, online booking options, bilingual service offerings, type of provider, need referral from other provider, and ages served. Next, an independent T-test was used to study the mean difference in appointment wait time at the practice level for children covered under AHCCCS versus commercial health insurance. Statistical significance was assessed at the $p < 0.05$ level.

Data Analysis: Qualitative

Field notes from our phone survey were analyzed using a general inductive content analysis approach.[33, 34] In this approach, themes were derived from data, as opposed to using preconceived categories.[35] A total of 1,066 field notes recorded from calls made on behalf of AHCCCS and commercial health insurance holders were included in final analysis. First, two coders [RB and SR] undertook an independent reading of a random sample of 100 field notes to establish consistency in the textual unit of analysis, identification of categories, and formation of themes.[36] Next, to assess coding consistency, five reviewers independently analyzed a new sample of 100 field notes.[36] Agreement among coders was high. The five coders independently coded the remaining sample and met regularly to resolve any coding discrepancies and discuss the themes that were detected in the data. This process resulted in 11 initial themes that discussed the barriers/challenges of accessing pediatric vision care services. These themes were further condensed to classify similar sub-themes into one category, which resulted in 7 major thematic categories.

Results

Quantitative Summary

From the AHCCCS side, 392 practices included were in the Central Geographic Service Area (GSA), 53 practices were in the Northern GSA, and 111 were in the Southern GSA. From the commercial health insurance side, 354 practices were in the Central GSA, 52 practices were in the Northern GSA, and 104 practices were in the Southern GSA (Table 1). An overview of results is provided on the next page, followed by a breakdown by insurance type (AHCCCS vs. commercial health insurance).

SOUTH			NORTH			CENTRAL		
County	AHCCCS	BCBS AZ/Avesis	County	AHCCCS	BCBS AZ/Avesis	County	AHCCCS	BCBS AZ/Avesis
Pima	92	87	Yavapai	18	20	Maricopa	379	341
Yuma	9	6	Coconino	16	14	Pinal	10	10
Cochise	5	6	Mohave	14	13	Gila	3	3
Graham	3	4	Navajo	4	4			
Santa Cruz	2	1	Apache	1	1			
Greenlee	0	0						
LaPaz	0	0						

Table 1. Vision care practices per county in Arizona included on behalf of AHCCCS (n=556) and commercial health insurance patients (n=510)

A. Access to Care

The state of Arizona is highly rural with a number of counties designated as medically underserved areas (MUA) by the Arizona Department of Health Services. The MUA designation is offered to counties with limited access to primary care services and primary care providers.[37] It is therefore important to summarize the current landscape of the state and identify gaps with respect to vision care services and eye care providers by county in Arizona. Figures 1 through 6 summarize the concentration of
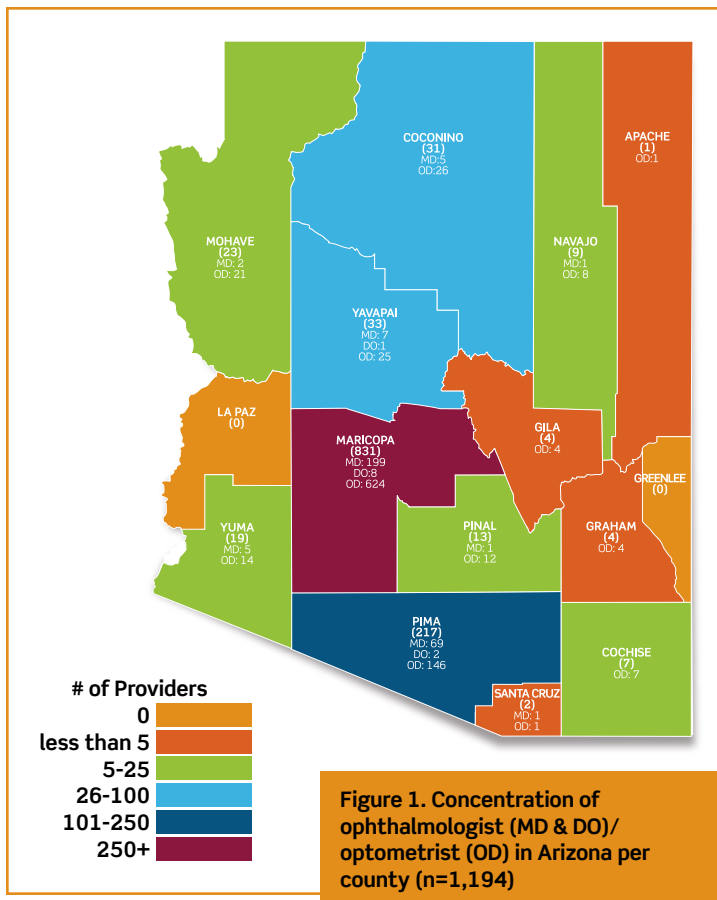

Figure 1. Concentration of ophthalmologist (MD & DO)/optometrist (OD) in Arizona per county (n=1,194)
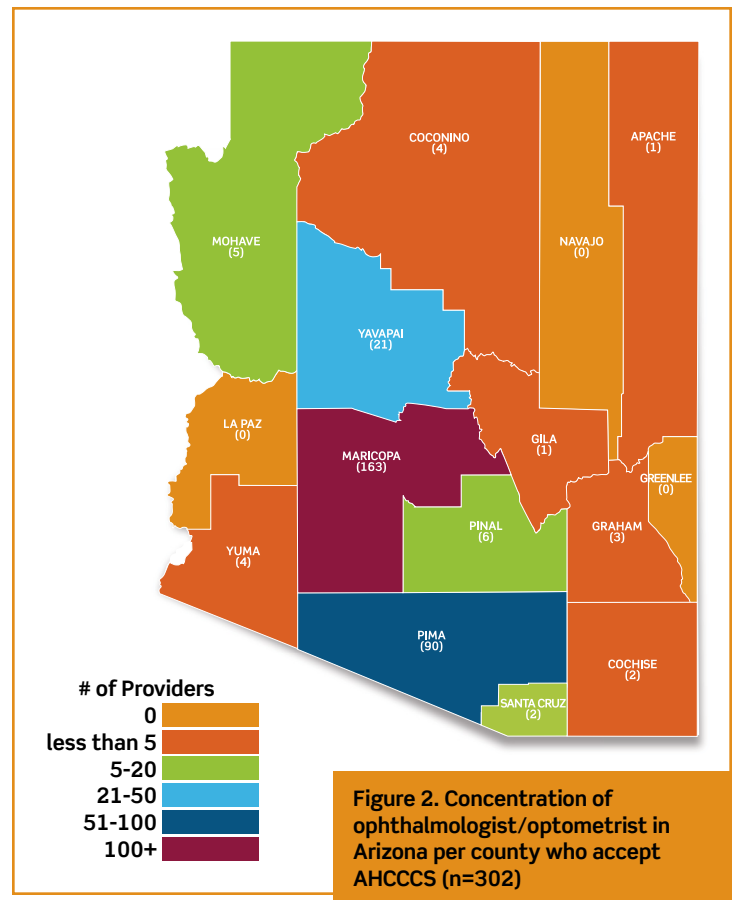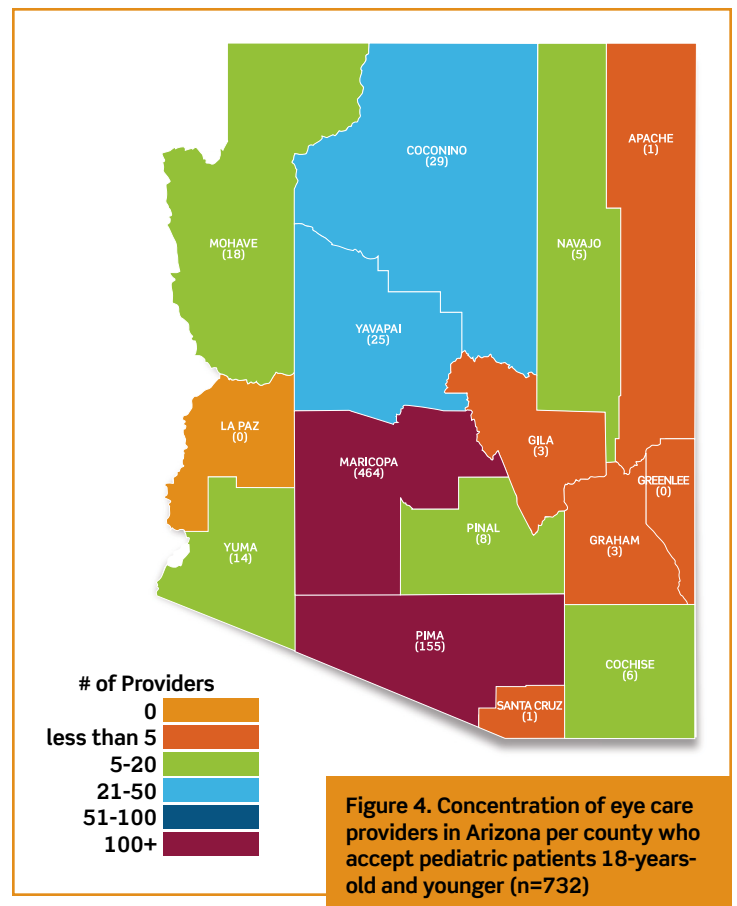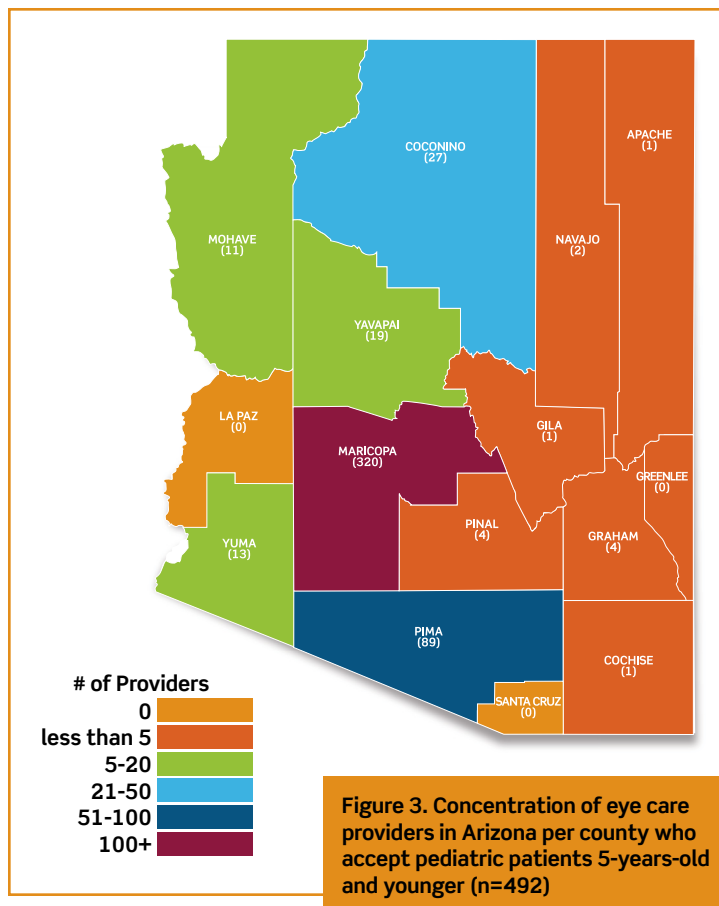

Figure 2. Concentration of ophthalmologist/optometrist in Arizona per county who accept AHCCCS (n=302)
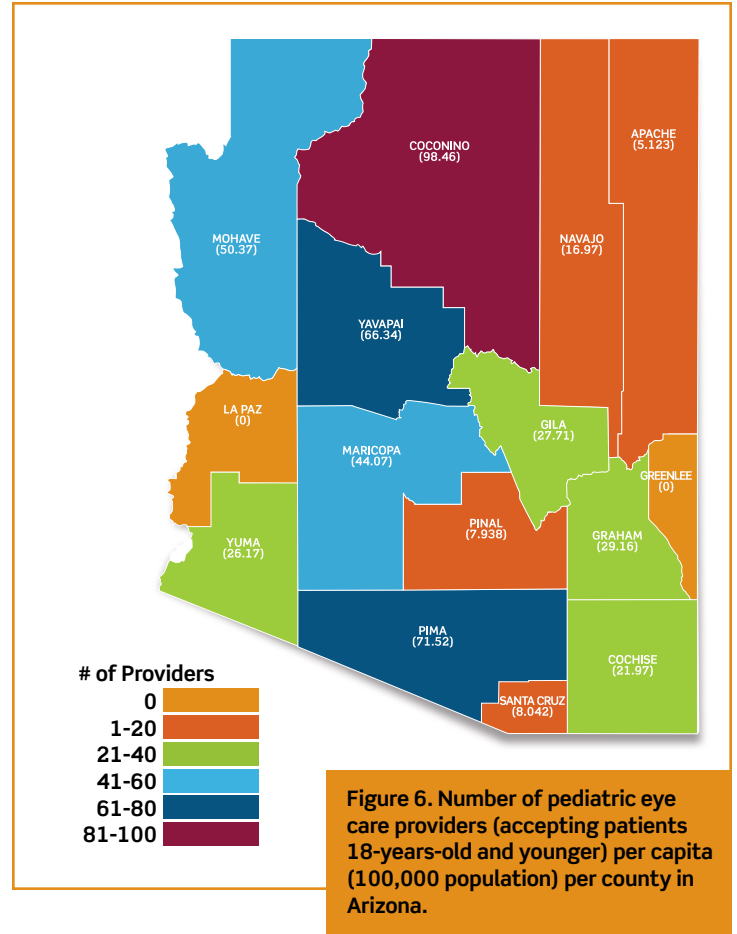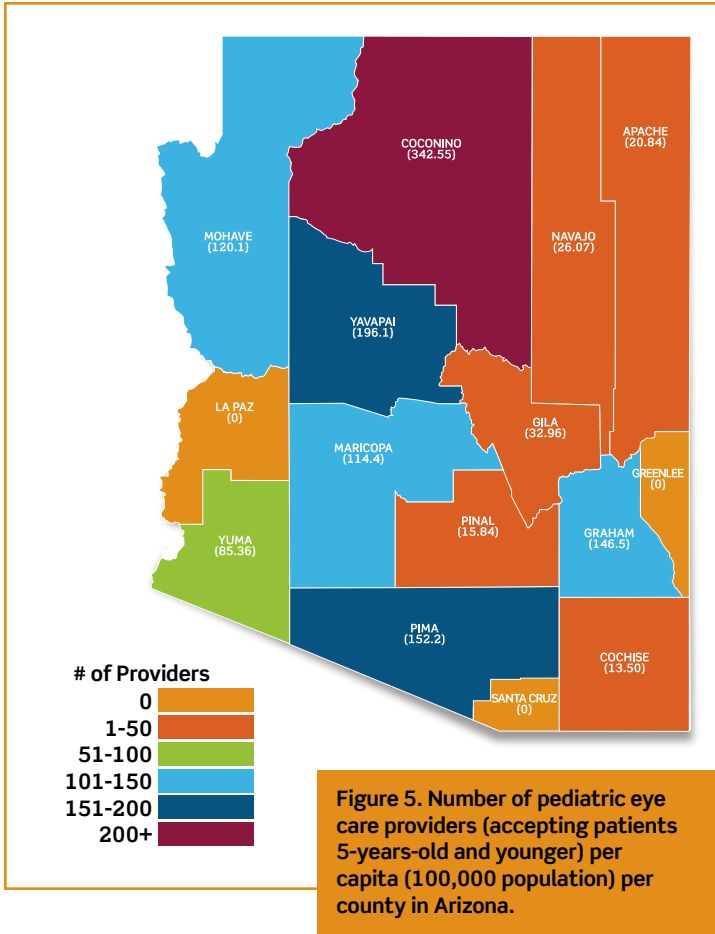
providers per county, their respective specialty, the insurance they are contracted to accept, and the ages they serve.

• A higher concentration of providers (MD/DO, OD) are observed in more urban counties of Maricopa (n=831, 69.6%) and Pima (n=217, 18.2%).

• Counties like Apache, Greenlee, and LaPaz have a single provider or no providers offering vision care services such as routine eye exams (Figure 1).

• Only **25.3%** providers accept AHCCCS, with no providers accepting AHCCCS in Navajo from a total of 9 practicing providers in the county (Figure 2).

• Around **41.0%** of providers in the state serve pediatric patients 5-years-old and younger.

• Counties like **Apache, Cochise, Gila, and Santa Cruz have only 1 or no providers serving young children** (Figure 3).

• As high as 61.3% providers in the state serve children 18-years-old and younger (Figure 4).

• The concentration of pediatric eye care providers accepting patients 5-years-old and younger per capita in a 100,000 population was greater than 100 in at least **6 out of 15 Arizona counties (Coconino, Graham, Maricopa, Mohave, Pima, Yavapai)** (Figure 5).

• The concentration of pediatric eye care providers accepting patients 18-years- old and younger per capita in a 100,000 population was greater than 40 in at least 5 out of 15 Arizona counties (Coconino, Maricopa, Mohave, Pima, Yavapai) (Figure 6).

# of Providers
- 0
- less than 5
- 5-20
- 21-50
- 51-100
- 100+

Figure 3. Concentration of eye care providers in Arizona per county who accept pediatric patients 5-years-old and younger (n=492)

# of Providers
- 0
- less than 5
- 5-20
- 21-50
- 51-100
- 100+

Figure 4. Concentration of eye care providers in Arizona per county who accept pediatric patients 18-years-old and younger (n=732)

Figure 5. Number of pediatric eye care providers (accepting patients 5-years-old and younger) per capita (100,000 population) per county in Arizona.

# of Providers
- 0
- 1-50
- 51-100
- 101-150
- 151-200
- 200+

Figure 6. Number of pediatric eye care providers (accepting patients 18-years-old and younger) per capita (100,000 population) per county in Arizona.

# of Providers
- 0
- 1-20
- 21-40
- 41-60
- 61-80
- 81-100

*The number of providers who accept pediatric patients 5-years-old and younger was divided by the population of children 5-years-old and younger for each county.[38]

*The number of providers who accept pediatric patients 18-years-old and younger was divided by the population of children 18-years-old and younger for each county.[38]

B. Patient Intake

Ensuring a seamless patient intake experience is vital in scheduling appointments. Some of the factors discussed here relate to a practice's availability to accept new patients, accept the patient's insurance type, offer online scheduling options, provide services in languages other than English, and accept patients without referral from their primary care providers (PCPs). Table 2 provides an overview and contrast of caller experiences by insurance type.

• The **majority of listed practices were accepting new patients.** However, more practices notified the commercial insurer caller (90.4%) that they were accepting new patients, rather than the AHCCCS caller (78.0%).

■ Reasons given for not accepting new patients included provider unavailability, only specializing in medical conditions, or not serving pediatric patients.

• As high as 69% of practices accepted the stated commercial health insurance (Blue Cross Blue Shield of Arizona or Avesis) and only **26% accepted AHCCCS**.

■ Out of the 26% practices accepting AHCCCS, 1.3% practices only accepted specific AHCCCS plans, while others only accepted AHCCCS for medical conditions.

Additionally, there were 2 practices that did not accept AHCCCS, but offered free routine eye exams.

• The **majority of practices did not require referrals from a PCP** for routine eye exams. Only 8.7% and 1.8% practices notified the AHCCCS caller and commercial health insurance caller respectively of needing a PCP referral.

• Around 56.0% practices informed the commercial health insurance caller that they have online scheduling options available and 43.0% to the AHCCCS caller.

• As high as 58.9% practices reported offering bilingual services to the

[18]

commercial health insurance caller and 45.8% to the AHCCCS caller.

■ From those who offered bilingual services, a vast majority offered it in Spanish. Only a minority of practices offered services in some other global languages (American Sign Language, Bosnian, Burmese, Croatian, Hindi, Konkani, Korean, Mandarin, Marathi, Portuguese, Punjabi, Serbian, Tamil, Telugu, Turkish, Urdu, Vietnamese).

The variability in the numbers for online scheduling and bilingual services across the insurance type could be due to the fact that the office staff on call may have varying levels of knowledge related to the types of services being offered by the practice. It could also be due to underlying differences in offering services to those on AHCCCS vs. commercial insurance.

C. Appointment Availability

Long wait times to see the provider and inflexibility in scheduling appointments on weekends or in evenings may act as an access barrier in seeking timely care.

• The **average wait time** for the next available appointment was **13 days for both insurance types**. Additionally,

no significant differences were observed in appointment wait times between callers with commercial health insurance and those insured through AHCCCS [t(756)=0.275, p=0.783].

■ The wait time for the next available appointment was in the range of 0 days to 97 for AHCCCS callers.

■ At least **26 practices were in direct violation of AHCCCS Contractors Manual (ACOM) Policy 417**, which requires that networks ensure routine appointments are available within 45 days of request.[39]
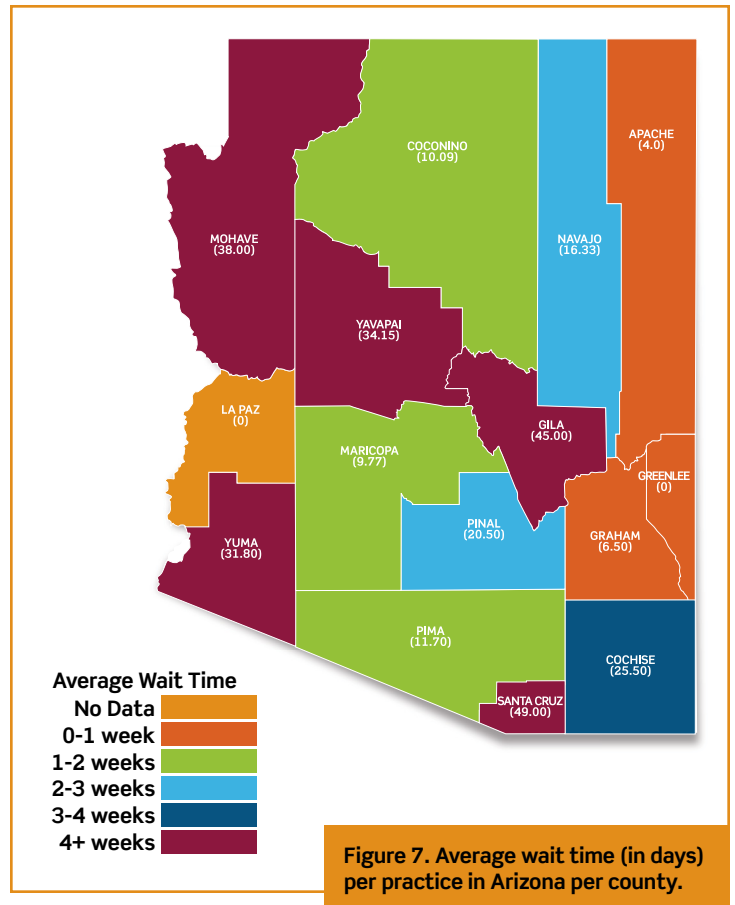

Figure 7. Average wait time (in days) per practice in Arizona per county.
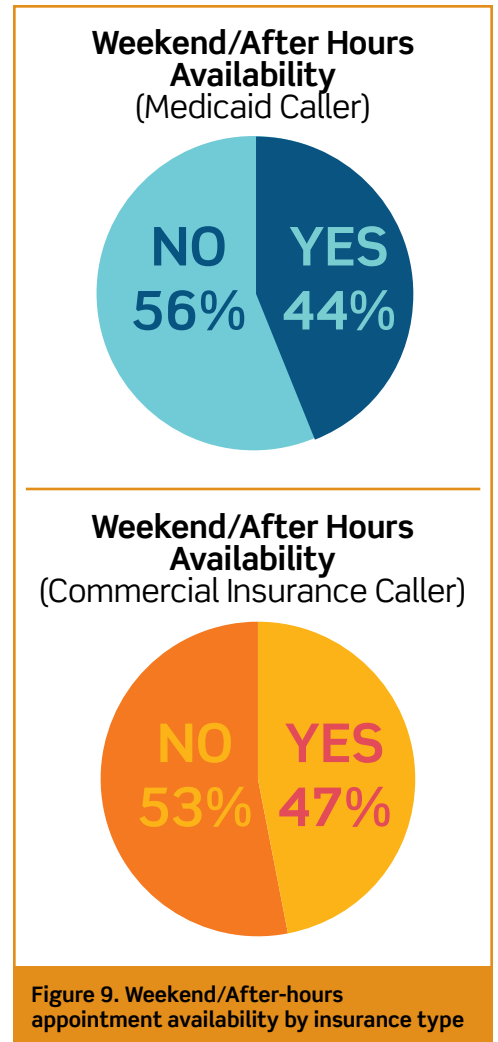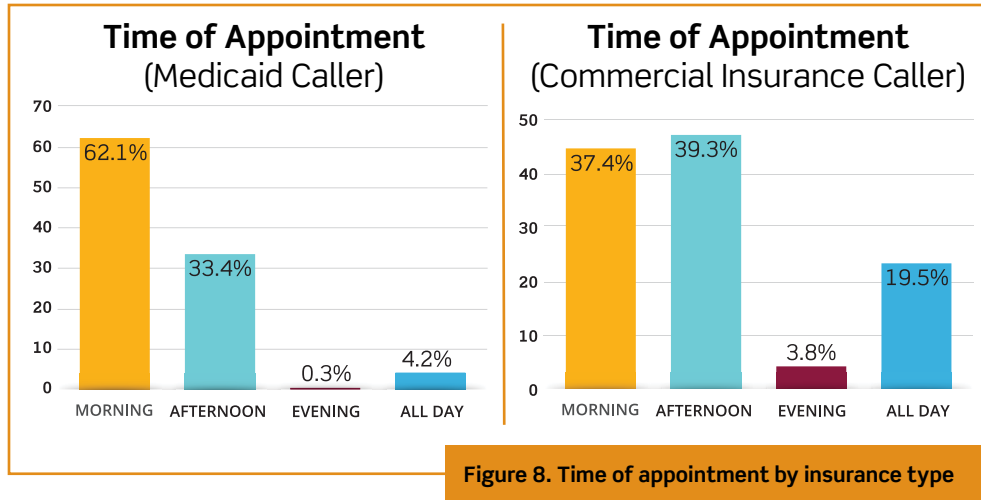
*Average wait time was calculated by the time that would pass from the time of the initial call and the first available appointment.

■ The wait time for the next available appointment was in the range of 0 days to 147 days for commercial callers.

■ At the county level, more urban counties of Coconino, Maricopa, and Pima had an average wait time of less than two weeks across both insurance types. While rural counties of Gila, Mohave, Santa Cruz, Yavapai, and Yuma had average wait time of greater than 4 weeks (Figure 7).

Patient Intake	AHCCCS	BCBSAZ/Avesis
Number of practices identified	556	510
Practices accepting new patients	78.0%	90.4%
Insurance accepted	25.7%	69.1%
Provider referral needed	8.7%	1.8%
Online scheduling available	42.9%	56.4%
Bilingual services available	45.8%	58.9%

Table 2. Variability in patient intake experiences by insurance type

• Most appointments were offered during the morning and afternoon for both insurance types. However, more practices notified the commercial caller (19.5%) of having all day availability versus AHCCCS caller (4.2%) (Figure 8).

• The availability of weekend or after hour appointments did not vary across insurance types with around 45% practices offering alternative appointment schedules when asked (Figure 9).

Figure 8. Time of appointment by insurance type

Weekend/After Hours Availability (Medicaid Caller)

NO 56%   YES 44%

Weekend/After Hours Availability (Commercial Insurance Caller)

NO 53%   YES 47%

Figure 9. Weekend/After-hours appointment availability by insurance type

Qualitative Summary

Responses from scheduling staff were grouped into seven major themes, listed in the order of occurrence from most to least frequent. The definition of the themes is presented in Table 3.

Major Themes*	Definition	Frequency (%)
Ages served	Identifies practices that do not serve children 18 years and under, those that serve children five years and under, and where availability of services varies depending on patient age	39.2
Insurance limitations	Identifies practices that do not accept certain insurance types for routine vision exams.	25.7
Language limitations	Focuses on restrictions in bilingual service offerings	24.2
Challenges in scheduling appointments	Categorizes practices that were unable to reach, calls were truncated due to requested information, had long caller wait times, or required provider referrals to schedule an appointment	22.3
Ease in scheduling appointments	Recognizes practices that have a smooth appointment scheduling process	11.1
Other challenges	Includes rude user experience, high out of pocket costs, or highly specialized facilities	10.2
Provider limitations	Highlights inconsistent provider availability	6.4

Table 3. Prevalence of major themes identified in the data

*These themes were not exclusive.

A. Ages Served

Over one third of our conversations with the office staff centered around what age groups the practice served. A majority of the field notes focusing on ages served indicated serving children under 5 years of age (57.2%). In fact, there are providers that see children as young as 6-months-old. However, the providers serving children under 5 years are available at certain times or specific locations only. In addition, the pediatric ophthalmologists and other providers serving this population generally have long waiting lists, thereby creating additional barriers in seeking prompt care.

> **"We see patients as young as 3-year-old, but the provider is only in the office for routine eye exams once a month."**

> **"The provider sees patients under 6 on Monday, Tuesday, and Wednesday mornings only. Plus, it will be a longer wait to see him."**

Certain practices have very specific criteria for the young patient to be seen by the provider. This would include the patient's ability to read the alphabet, recognize the shapes, know their numbers, or to be able to sit still for the routine eye exam.

> **"So long as the patient can recognize the alphabet, we will see them."**

Some indicated serving very young patients, but they only accept medical insurance and do not accept vision insurance (e.g., Avesis). While others do not accept any insurance for routine eye exams (e.g., out of pocket cost $70 USD).

On the other hand, a few practices (27.0%) accept pediatric patients at different ages (e.g., > 6 years, > 7 years, > 8 years, > 10 years) based on the facility's capacity to provide the needed care. Some of the reasons cited included appropriate equipment fitting, provider expertise, or the patient's ability to communicate, answer questions or tolerate eye dilation. Many practices referred us to other providers that see very young children.

> **"We accept appointments for children 10 years and older. You have to get your child's eyes dilated by another provider at a different facility in order to have the eye exam."**

Remaining practices reported only serving adults 18 years and older (15.8%). In fact, there are practices that do not see pediatric patients for routine eye exams but do render services for medical issues and specialty care.

B. Insurance Limitations

The second most common theme identified from the field notes were associated with insurance limitations (25.7%) that would potentially restrict access to care. There were a number of instances where the practice outright denied accepting the stated insurance. This was more so true for AHCCCS holders than for commercial health insurance holders.

> **"Our facility is medically contracted with AHCCCS, but not visually."**

In fact, a receptionist asked us to avoid stating that we have AHCCCS otherwise she could not schedule us for an appointment.

Certain practices required a medical referral from a primary care provider (PCPs) to cover routine eye exams through insurance. Practices also stated that the patient could pay out of pocket for an eye exam which would cost in the range of $50-$550. Additional tests would cost more and could cost as much as $400.

> **"The visit must be deemed medically necessary in order to be covered by insurance."**

> **"For Blue Cross Blue Shield of Arizona, if there is an NNJ in front of the insurance number, we need a referral from a primary care physician."**

Other practices reported accepting AHCCCS for certain services only, while extra services or products would cost an additional out of pocket fee.

> **"AHCCCS will cover routine eye exams, but not lenses or glasses. It will not cover additional tests such as refraction which costs $45 USD."**

One of the national optical chain practices stated that they do not accept AHCCCS since they are not considered a "provider". While few providers stated that they were out of network for the stated commercial health insurance.

> **"We just stopped being in-network for Avesis but are willing to offer 50% off from the out-of-pocket fee of $95."**

Certain practices required a medical referral from a primary care provider (PCPs) to cover routine eye exams through insurance.

We also observed that a few practices do not state the accepted commercial health insurance on their online website, while some listed that they accept Avesis, which proved to be incorrect. In addition, a few practices do not bill the insurance directly, but provide an invoice of the services rendered for the patients to bill or navigate insurance reimbursement themselves.

C. Language Limitations

Arizona being a highly diverse state presents very unique needs in terms of the languages spoken to communicate with providers. The state consists of a high Hispanic population and patients often feel more comfortable speaking in Spanish with their care team. Around one-fourth of our conversations focused on bilingual offerings, and we observed some limitations and challenges from the provider's end. For example, not all providers are bilingual, which means scheduling with a provider or staff member who is bilingual would result

in a longer wait time. While others offer bilingual services only on certain days of the week (e.g., Thursday or Monday only). This may result in significant access barriers especially if the child is attending school or the parent/caregiver is a working professional and not available on those specific days and times.

"All of our optometrists are not bilingual, but we do have a few techs that are available to speak Spanish."

"Wait time for a bilingual provider is a lot longer. Ends up being 2 weeks away."

We observed that the scheduling staff were often accommodative of our need to converse in a second language and tried to offer alternative options. One of them offered us the option to FaceTime with a relative or friend who could speak both languages during the appointment. Others stated having technologies in place that could be

used for the translating needs (e.g., phone translating lines, translating app on tablet/iPad, video chat with translators). While others strongly recommended bringing in our own translators.

"Our optometrists do not speak Spanish, but we do have a way of pulling up a translator."

"We have people who can translate outside the doctor's office but do not have anyone who can translate inside the doctor's office. You would have to bring your own translator into the office."

On the other hand, we also experienced in a few instances some resistance or hesitancy from the receptionist when asked for bilingual offerings.

"I mean the kid just needs to know his letters; language shouldn't matter for that."

D. Challenges in Scheduling Appointments

Facing obstacles in scheduling appointments prove to be substantive access barriers. Our field notes discussed the various challenges faced in setting up appointments for a routine eye exam during the secret shopper calls (22.3%). One of the challenges was that we were unable to reach the facility. This was due to any of the following reasons: wrong phone number listed on the website, wrong addresses listed on the website, the call went straight to voicemail, unable to reach after three attempts, no provider working at the location or inactive provider. In a real-world setting, this may prove to be a hindrance in seeking care especially for those who may want to schedule an appointment close to their place of residence and may have transportation issues.

Additionally, at times our calls were truncated due to the requested information, which was mainly pertaining to insurance. In a real-world scenario this may pose a problem for those who are uninsured since they will not be able to schedule appointments without the requested insurance information. The receptionist would start the conversation by requesting personal details and insurance information and would not reveal any further information including an estimated appointment date if the caller was unable to provide those details. For example, a receptionist "hung up" the call when we said we do not have the insurance information available. [Note: These entries were excluded from further analysis for the quantitative data].

Some of the other challenges were related to long wait times to see the provider.

"We are unable to accept new patients until next year."

In other attempts, we were kept on hold for a long period of time (20 minutes in one instance) in order to schedule an appointment. While others required a referral from a primary care provider to proceed with the scheduling of an appointment.

E. Ease in Scheduling Appointments

As opposed to some of our experiences described above, there were a few practices where the scheduling process was easy and seamless (11.1%). In such instances the receptionist went out of their way to accommodate our requests, were considered friendly, warm and approachable, and were willing to answer any questions that we had during the conversation. Such practices also offered care to children under 5 years, included bilingual services, accepted the stated insurance plan, and often did not require referrals from PCPs.

"A referral is not needed for patients less than 21-years-old for a routine eye exam. However, if it is a medical problem, a PCP referral is needed."

F. Other Challenges

Other caller experiences that may act as a barrier in scheduling appointments for routine eye exams included rude or uncivil office staff (10.2%). This was observed especially when the practice did not accept the stated insurance (particularly AHCCCS), if they were unable to accommodate our requests for bilingual providers or for after-hours/weekend appointments. The

receptionists were noted to be in a hurry to "get off the phone".

"If we see you, we would be seeing you assuming you are unable to pay."

Additionally, for those providers that do not accept medical or vision insurance to cover routine eye exams, many reported high out of pocket costs ranging anywhere between $50-$550. Additional tests were reported to cost more and up to $400.

"We do not accept AHCCCS and the cash payment for a routine eye exam would be roughly $100 depending if dilation or extra exam were needed."

Some other practices (30.8%) only specialized in medical conditions of the eye and did not offer routine eye exams. For example, they only provided services for pain management, retinal issues, glaucoma treatment, plastic surgery, and other ocular conditions.

G. Provider Limitations

In terms of provider limitations, we observed inconsistent provider availability in a few instances (6.4%). For example, reports that providers were gone on vacation, only one provider available to see children <10-years-old, the provider retired too soon, or the practice was in between hiring new providers.

"Our physician retired sooner than expected with a wait list going into August or September 2022."

"Usually a Neurology specialist sees patients here, however, the OD comes in occasionally to do routine appointments."

Recommendations

• **Increasing Provider Availability in Rural Areas:**
Potential patients should have access to the eye care they need and a provider shortage, especially in rural counties, can exacerbate vision loss and eye care issues in those already medically underserved.[40] Efforts to recruit and retain vision and eye care providers in underserved regions can include loan repayment programs, financial assistance to build practices, pipeline programs to educate and train members from these communities to return and practice, expanding telehealth services, and enabling satellite clinics of larger urban providers.

By serving all ages, families will also gain the ease and convenience of only having to navigate the location, operating hours, appointment times, insurance coverage, language capabilities, etc. of a single practice.

• **Serving All Ages:** Providers and practices holding themselves out to serve children should include all ages of pediatric patients so that families can meet CDC recommended screening guidelines (newborn to 3 months, 6 months to 1 year, 3 years, 5 years, and every two years in school age)[11, 12] and if needed, utilize modified screeners, tools, optotypes, and formats for pre-reading children per National Center for Children's Vision and Eye Health guidance.[41] By serving all ages, families will also gain the ease and convenience of only having to navigate the location, operating hours, appointment times, insurance coverage, language capabilities, etc. of a single practice instead of numerous options to meet the eye care needs of all the children in the household, increasing access, and increasing the likelihood of utilization.

• **Accepting All Insurance Carriers:** All providers and practices holding themselves out to serve children and accept insurance coverage for those services should accept all vision and eye care plans, especially those serving vulnerable and low income children such as AHCCCS. Approximately 49% of Arizona children are covered by either AHCCCS or the state Children's Health Insurance Program, KidsCare, representing a significant amount of the overall pediatric population.[42] Refusing services to children on AHCCCS contributes to health disparities for this population who are already navigating negative social determinants of health, barriers to equal health, and educational opportunities. Additionally, not providing care to AHCCCS recipients violates the providers' duty and social contract.[43] On a systems level, for those entities entrusted to ensure access to this pediatric population, it is essential to ease the process and costs associated to enable practices of all sizes and bargaining power to serve this community of vulnerable children.

- **Increasing Language Services:** Providers holding themselves out to serve children in Arizona should offer consistent language translation services. Professional organizations and thought leaders in vision and eye care endorse bilingual clinics to meet the needs of a practice's community.[44] In Arizona, 22% of the population speaks Spanish (above the national average of 17%), the most common language spoken after English.[45] Among Spanish speakers in the state, 34.8% report speaking English "less than very well".[45] Therefore, practices that do not offer Spanish bilingual services during operating hours, either via staff member or remote translation options, reflect a gap in meeting the community's need and further gaps in access and care for Hispanic children and families.

- **Easing Barriers to Scheduling:** Providers holding themselves out to serve children in Arizona should make efforts to ensure minimal barriers to scheduling appointments for services. Inability to connect with a scheduler, long telephone hold times, and wait times for next available appointments create delays in screening and treatment and can worsen existing vision challenges and/or serious eye issues.[5] These longer wait times for appointments can also exacerbate vision issues and lead to worse reading and educational challenges for children causing them to fall behind in their studies. Practices experiencing these challenges to scheduling should consider improving processes such as offering an answering service when unavailable to physically answer the office phone, offer online scheduling options, offer same day call back options,

and increase capacity or operating hours to reduce wait times for next available appointments. Practices accepting AHCCCS should take care to stay in compliance with AHCCCS Contractors Manual Policy 417.

- **Improving Patient Friendly Interactions:** Providers holding themselves out to serve children in Arizona should ensure that potential patients are not subjected to rude behavior, or incivility, by practice staff answering calls. Incivility impedes patient comfort, trust and willingness to make and keep appointments, and ability to receive care.[46] Incivility can indirectly impact access to care, patient trust, and patient satisfaction, especially for patients for whom English is not their first language, new to the American medical system or Medicaid (AHCCCS) recipients. Addressing incivility requires organizational culture change, training, accountability, and modeling of respectful and welcoming behavior towards all patients.[43]

- **Minimizing Out of Pocket Costs:** Providers holding themselves out to serve children in Arizona should take steps to minimize out of pocket expenses via noninsurance costs or high co-pays for patients, especially for basic screening and eye care services. Patients experiencing high out of pocket costs, especially low income families, are less likely to seek and access care.[47] Practices, especially larger organizations, should explore options to negotiate lower cost-sharing options for patients and be mindful of the costs they list for basic and screening services for those paying out of pocket or with minimal insurance coverage. In turn, commercial insurance

companies offering vision plans should ensure that these services are covered or at minimal cost to their enrollees.

- **Improving Availability of Providers:** Providers holding themselves out to serve children in Arizona should to the best of their ability ensure a robust and consistent workforce to meet the needs of the communities in which they practice. Although demographic projections point only towards higher need for health care services, vision, and eye care practices can also suffer from practitioner shortages, especially for ophthalmologists who serve young children,[48] burnout, and societal phenomena such as "the great resignation" associated with the pandemic.[48] Nevertheless, challenges in provider capacity and consistency impact access to care, especially among patients who may require nontraditional hours. Practices have a duty to adequately staff to meet patient needs, focus on recruiting, hiring and retention practices and address burnout and dissatisfaction among providers. In turn, professional organizations should advocate for more residency and training opportunities to enable a growth in vision and eye care professionals, provide resources for burnout, and assist providers in advocating for improved conditions within their practices if needed.

Limitations

The results of this study should also be viewed in light of its limitations.

Accurate Provider Lists: To obtain an accurate and working list of currently licensed and practicing clinicians in the state of Arizona, we contacted respective licensing boards for MD, DO, and OD eye care practitioners. As a result, we received updated (as of January 2022) licensee data from the Arizona Medical Board and the Arizona Board of Optometry. A closer analysis of the licensee data revealed that the OD licensee data did not require licensees to provide office addresses, which resulted in an assortment of residential and office addresses. Furthermore, we attempted to contact the Arizona Osteopathic Board on several occasions via different routes but were ultimately unsuccessful in obtaining an updated list. Consequently, the list of osteopathic ophthalmologists included in this study were incorporated from a list current as of 2019. Efforts were taken to identify the correct office addresses and telephone numbers of these clinicians to obtain the most current and accurate look at the eye care landscape in Arizona.

Ability to Contact Provider Offices: Another limitation to note is the varied operating hours of each practice. As many of the practices operated during traditional business hours with shortened Fridays and varied lunch breaks, this restricted the times available to call the practices. It should also be emphasized that this study involved placing a direct phone call to each of the practices. If a practice was unreachable, we did not leave voicemails and followed up at a later date. The availability of online appointment scheduling systems varied between practices. Further, it should be noted that while practices were often open during traditional business hours, the clinicians had hours that were different from those of the office operating hours.

Indian Health Service (IHS) and Veterans Affairs (VA) Operated Facilities: Due to the complexities in providing adequate information for the intended survey, IHS and VA-operated facilities were excluded from the study except for one IHS contractor that provided information. Because IHS and VA facilities require unique identifiers of their patient population, e.g., Social Security numbers or service numbers, obtaining data from these providers was not feasible.

Conclusion

An accessible, adequate, affordable, and representative provider network is a critical component of health insurance coverage for families.

Inadequate provider networks can prevent patients, especially children, from being able to receive care from the providers they know, trust, and depend upon throughout their lives. To reduce the number of children with unmet vision care needs, access to eye care in Arizona can be improved by developing systems that support early and regular screening, referral, case management, and vision aids as needed. Routine and recommended vision screenings play a vital role in identifying potential signs of vision challenges and serve as important opportunities to recommend referral for further evaluation. Regular screenings, eye exams and access to vision aids can directly impact educational success and future employment opportunities, a factor important for all children and crucial for low income children and their ability to exit from cycles of poverty. Adequate, affordable, and accessible provider eye care networks help meet the goal of holistic and whole-body care for both private and public health insurance recipients. For those on Medicaid (AHCCCS), it helps to meet our heightened duty to low income and vulnerable children, and to ensure we meet our stewardship for this publicly funded safety net program. Arizona and its vision providers can and must do better to meet the eye care needs of the state's children to enable their developmental, physical, and economic well-being.

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Appendix

Survey Script

In calls conducted from May through June 2022, 5 Research Assistants (CR, NV, DS, FK, JO) followed this standardized set of guidelines outlined in the script below on behalf of a 10-year-old and 3-year-old patient covered either through an AHCCCS or commercial health insurance plan. The script was developed and approved as part of the research protocol filed through the ASU Institutional Review Board.

You are a "secret shopper", presenting on each call as the parent of a 10 and 3-year- old child, seeking to schedule a routine vision checkup. Calls should be conducted during normal business hours for each practice, which can be referenced on the provider spreadsheet. Before calling, you will need to determine what insurers that each office contracts with. This information should be found on their website and will also be recorded on the provider spreadsheet.

For AHCCCS plans, insurers are categorized according to 3 *geographical services areas (GSAs)*:
- **North** (Mohave, Coconino, Yavapai, Navajo, and Apache)
  - **Indicated Health Plan: Care 1st**

- **Central** (Maricopa, Gila, and Pinal)
  - **Indicated Health Plan: Mercy Care**

- **South** (La Paz, Yuma, Pima, Santa Cruz, Cochise, Graham, and Greenlee)
  - **Indicated Health Plan: Banner University Family Care**

For commercial health insurance plans, insurers are categorized according to 2 *service provider types*:
- **Physicians** (MD, DO)
  - **Indicated Health Plan: Blue Cross Blue Shield of AZ**

- **Optometrists**
  - **Indicated Health Plan: Avesis**

Good morning/afternoon! My name is [FIRST/LAST NAME] and I'm calling on behalf of my daughter/son,_____ ,

to schedule a [Role A or Role B] as a new patient with Dr. _____ .

Age

_____ is 10 years old.

Insurance #1: AHCCCS

We have [PREDETERMINED AHCCCS PLAN]. Health plans should correspond to the GSA, as shown above.

Role A: I am seeking to schedule an eye checkup for my 10-year-old daughter as recommended by her pediatrician. She seems to be having some vision trouble and may need glasses. (Follow through setting up an appointment). You are on Medicaid (AHCCCS).

   Also, what ages do you serve? I may need to set up a routine eye care visit for my younger child as well. (If asked for the age of the younger child, respond- 3-year-old)

Role B: I am seeking to schedule an eye checkup for my 10-year-old son as recommended by his pediatrician. He seems to be having some vision trouble and may need glasses. (Follow through setting up an appointment).
You are on a predetermined commercial health insurance plan.

 Also, what ages do you serve? I may need to set up a routine eye care visit for my younger child as well. (If asked for the age of the younger child, respond-3-year-old)

1. Could I schedule an appointment with Dr._____?
[If "yes" or "yes, but you need a referral"—continue with (2) below]
[If "no"—continue with B1]

2. When is Dr._____'s next opening?

3. When is the next availability after [1st date provided]?

4. Would my child need to see another clinician before seeing a specialist (MD/DO)?
[If "no"—continue with (5) below]
[If "yes"—continue with C1]

5. (When calling as an AHCCCS recipient:) Can I get an appointment if I can only pay through AHCCCS?
[If "yes"—continue with (6) below]
[If "no"—continue with (R1)]

6. Also, is Dr._____ bilingual?
(If asked which language you prefer, respond- Spanish)

7. Does he/she offer after hours (morning/evening) or weekend appointments?

If/when you are offered an appointment, do not finalize, or confirm. End the call with the following:
Perfect. I will just need to give you a call back later today/tomorrow after I confirm my work schedule. Thank you so much for your time!

After the call has ended, make sure that you have recorded all information in the spreadsheet.

B Module—If Program Cannot Schedule an Appointment
(B1) List reasons why appointment cannot be scheduled (check all that apply).

1.	Not currently scheduling ophthalmologists or optometrists (MD/DO/OD)—none are available	[go to (R1)]
2.	Only schedule appointments for urgent or emergent conditions	[go to (R1)]
3.	Only schedule appointment for other eye care professionals, not ophthalmologists (MD/DO)	[go to (C1)]
4.	Other	

C Module—If Patient Needs to See another Clinician before Seeing an Ophthalmologist

(C1) When is the next available appointment with this other clinician? *[Record exact date and time; then return to main survey and continue with (6)] [If respondent cannot access appointment system without real information, ask, "About how long is the wait for such an appointment?"]*

(C2) And after that appointment, how long would the wait be to see an Ophthalmologist? *[Record response]*

Referral Module—Where Program Would Refer People they couldn't Schedule

(R1) So if I couldn't get an appointment with this provider, is there somewhere else you could refer me? Do you have a phone number?

[Record name and contact information] [Later, follow up with calls to referred offices]

*This script has been adapted from the works of Steinman et al. (2012) and Reddy et al. (2022).

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