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Willingness of Eye Care Practices to Evaluate Children and Accept Medicaid

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Abstract

Background—The willingness of eye care providers to evaluate children or to accept Medicaid may be a barrier to care for those with an abnormal screen.

Objectives—To determine the proportion of eye care practices that would provide diagnostic evaluation for children and accept Medicaid payment and to evaluate the influence of child age and practice characteristics on provision of care or acceptance of Medicaid.

Methods—We conducted a telephone survey of 364 eye care practices in Michigan, which were randomly selected from telephone directories of 26 rural and urban cities as defined by metropolitan statistical areas.

Results—The response rate was 93%. Most eye care practices, but more optometry-listed practices than ophthalmology-listed ones, would evaluate preschool-aged children (88% vs 73%; $P < .01$) or school-aged children only (11% vs 7%; $P < .01$). The proportion of practices willing to evaluate preschool-aged children was lower in urban cities compared with rural cities for optometry-listed (83% vs 96%; $P < .01$) and ophthalmology-listed practices (67% vs 93%; $P < .01$). Medicaid acceptance among practices that would evaluate children was higher among ophthalmology-listed than optometry-listed practices (74% vs 59%; $P = .01$) and did not vary by urban or rural status. Practice size was not associated with willingness to provide care for children. However, among practices that would provide care for children, larger practice size was associated with increased odds of Medicaid acceptance in both optometry-listed and ophthalmology-listed practices.

Conclusions—These findings contradict the perception that eye care for children is unavailable. More work is needed to understand the relationship of this availability with the accessibility of eye care.

Keywords

Medicaid; ophthalmology; optometry

Correctable visual impairment, including refractive error, affects as many as 20% of all children.¹ Between 3% and 5% of all children have amblyopia,² a condition that may lead to permanent monocular blindness if not treated by the time a child is in elementary school.³ Routine vision screening for preschool-aged and older children is widely recommended.^{4–7} In

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addition to the screening that may occur in the primary care practice setting, many communities have mass screening programs.⁸

In our previous⁸ and ongoing work evaluating the effectiveness of vision screening programs, comments from providers involved with screening suggest that a major barrier to follow-up care is the lack of eye care specialists who will evaluate young children, especially children enrolled in Medicaid. However, we have found similar rates in the receipt of eye care between publicly and privately insured children.⁹

Few data are available regarding either the proportion of eye care providers who evaluate young children or the willingness to accept Medicaid payment. One study, based on national data collected in 1989, found that Medicare or Medicaid was accepted by about half of all optometrists and ophthalmologists, with a slightly higher rate of acceptance in rural areas than in urban areas.¹⁰ A second study, based on data collected in Oregon in 1990, found that 70% of optometrists but only 11% of ophthalmologists would accept Medicaid.¹¹ Neither of these studies addressed acceptance of Medicaid for children specifically.

We intended to investigate the availability of eye care for children and the willingness to accept Medicaid payment. We were particularly interested in rural and urban differences because of our previous findings that Medicaid-enrolled children living in rural areas were much more likely to receive eye care than were those living in urban areas.¹² We chose sampling and data collection methods that would best reflect the options available to families; our sampling frame included eye care practices listed in local telephone directories, and our informants were receptionists or other staff who answer calls and make appointments at the eye care practices.

We had 2 main hypotheses: 1) Most optometrists and ophthalmologists provide routine diagnostic evaluation for children, and 2) ophthalmologists are more likely to provide care for preschool-aged children because of the increased difficulty of examining young children and the greater likelihood of the need for surgical intervention for problems such as strabismus. As secondary outcome measures, we evaluated the impact of Medicaid insurance, rural and urban status, and other practice demographics (eg, practice size, specialty type) on the willingness of eye care specialists to provide care for children.

METHODS

We conducted a cross-sectional telephone survey of optometry and ophthalmology practices in Michigan. The University of Michigan Medical School Institutional Review Board approved this study.

City Selection

We selected the 13 urban and 13 rural cities with the greatest number of Medicaid-enrolled children in Michigan, based on the 2001 enrollment files. During 2001, there were 831978 children ≤ 18 years of age who were enrolled in Medicaid. We classified children as living in an urban or rural area on the basis of whether the city of residence was in a metropolitan statistical area (MSA), as defined by the US Census Bureau.¹³ Each MSA is formed around an urbanized area of 50 000 or more inhabitants and includes adjacent communities if they are economically or socially integrated to the urbanized area, and each MSA is composed of 1 or more counties. Therefore, some rural areas exist within an MSA. In Michigan, 26 of the 83 counties were classified as MSAs. Most of the Medicaid-enrolled children (82%) resided within an MSA.

After selecting the 26 cities, we found that one of the rural cities was close to one of the urban cities, with many shared services, including a single telephone directory. Because of this

overlap, these 2 cities were combined in our analyses and classified as urban. The selected cities included 50% of the Medicaid enrollees living in urban areas and 17% of those living in rural areas.

Sampling Frame

We identified eye care practices within each city by using telephone directories. The count of practices was used to describe the distribution of eye care practices and to establish the sampling frame for the survey.

To determine the number of optometry and ophthalmology practices, we counted the number listed under the headings “Optometrists—Doctors of Optometry (OD)” and “Physicians & Surgeons MD & DO—Ophthalmology.” All eye care practices listed in the telephone directory for each selected city, including those located outside the city limits, were included in the enumeration and subsequent survey sampling frame because parents could conceivably take their children to these neighboring practices. We also included those practices that operate within optical stores, some of which were national chains. Other telephone listings in which eye care practices appeared, such as “Eye Doctors,” “Optical Goods—Sales & Service,” or “Opticians,” had only duplicates from the main listings and were not we used in our analyses.

Within the sampling frame of each city, we sought to randomly select 10 optometry-listed and 10 ophthalmology-listed practices. However, 4 urban cities and all rural cities had fewer than 10 ophthalmology practices listed, and 6 rural cities had fewer than 10 optometry practices listed. In these cases, all practices were included in the survey.

Survey Administration

The telephone survey consisted of a standardized script administered to the receptionist or staff member who answered the telephone. We first asked for the number of optometrists or ophthalmologists in the practice. We then asked if the practice provides routine eye examinations for preschool-aged (3-5 years old) children. If the response was yes, we assumed the practice would evaluate school-aged children also; if the response was no, we asked if the practice would provide routine eye examinations for school-aged children. Finally, for those practices that would provide care for children, we asked if the practices would accept Medicaid payment for these services. The survey instrument was pilot tested for ease of administration and clarity before data collection. All data were collected in September 2003.

Categorization of Practice Types

We combined the sampling frame, which categorized each practice based on its telephone directory listing (optometry-listed or ophthalmology-listed), with survey data on the number of optometrists and ophthalmologists in the practice to create a second classification scheme based on the type of eye care providers within the practice: optometry only, ophthalmology only, and dual specialty.

Statistical Analysis

Categorical data were compared by Pearson chi-squared tests of independence. The means of continuous variables were compared by *t* tests. We performed separate analyses for our primary (optometry listed vs ophthalmology listed) and secondary (optometry only vs ophthalmology only vs dual specialty) classification of eye care practices.

We used logistic regression modeling to evaluate the association between the number of eye care providers within a practice and the willingness to evaluate children or accept Medicaid. Significant associations are reported as odds ratios (OR) and 95% confidence intervals (95% CI).

All analyses were performed by Stata 8 statistical software (Stata Corporation, College Station, Tex).

RESULTS

Practice Distribution

Within our sampling frame, telephone directories identified 672 optometry practices, of which 549 were in urban cities, and 354 ophthalmology practices, of which 309 were urban. The average ratio of ophthalmology-listed practices to the number of Medicaid enrollees within each city was 16:10 000, which was substantially lower than the ratio for optometry-listed practices (37:10 000; $P < .01$). The ratio of optometry-listed practices was greater in rural than in urban areas (53:10 000 vs 25:10 000; $P < .01$). However, the ratio for ophthalmology-listed practices did not vary by rural or urban status ($P = .97$).

On the basis of survey data, 24% of the practices were dual specialty. Dual-specialty practices were more common in rural cities than in urban ones (13:10 000 enrollees vs 2:10 000 enrollees; $P < .01$). More ophthalmology-listed than optometry-listed practices were dual specialty (43% vs 12%; $P < .01$).

Practice Characteristics

On average, there were 1.7 optometrists in optometry-only practices. Urban optometry-only practices had slightly more optometrists than did rural ones (1.8 vs 1.5; $P = .03$). In ophthalmology-only practices, the average number of ophthalmologists was 1.9 and did not vary by urban or rural status ($P = .62$).

Among the dual-specialty practices we surveyed, there was 1 university-affiliated practice with 2 optometrists and 50 ophthalmologists. Excluding this outlier, the average number of optometrists in dual-specialty practices was 1.7, which did not vary by urban or rural status. However, urban dual-specialty practices had twice as many ophthalmologists as did rural ones (4.2 vs 2.1; $P = .02$).

Survey Response

We contacted a total of 364 eye care practices. Of these, 337 completed the survey, 24 refused participation, and 3 were unable to be contacted, for an overall response rate of 93%. Of those completing the survey, there were 208 optometry-listed practices, of which 116 were in urban areas, and 129 ophthalmology-listed practices, of which 98 were in urban areas. The response rate did not differ between optometry-listed and ophthalmology-listed practices (88% vs 94%; $P = .09$) or between rural and urban cities (93% vs 95%; $P = .46$).

Provision of Care for Children

Across all cities, most eye care practices would provide care for preschool-aged children (82%; range, 64%-100%) or school-aged children only (10%; range, 0%-36%). Most optometry-listed practices (88%) reported that they provide routine diagnostic evaluation for preschool-aged children, and all but 1 of the remaining practices (11%) would provide such care for school-aged children. Although most ophthalmologist-listed practices would provide routine diagnostic evaluation for children (pre-school-aged, 73%; school-aged children only, 7%), the proportion providing such care was lower than in optometry-listed practices ($P < .01$). Fewer optometry-listed and ophthalmology-listed practices in urban cities compared with those in rural cities would evaluate preschool-aged children (Table 1). There was no association between the number of optometrists or ophthalmologists in optometry- or ophthalmology-listed practices ($P = .43$) and the odds of providing care for children ($P = .07$).

The proportion of dual-specialty practices that would evaluate preschool-aged children was not different from optometry-only practices (89% vs 88%; $P = .86$) but was greater than ophthalmology-only practices (89% vs 62%; $P < .01$). Dual-specialty practices were slightly less likely to provide evaluation for preschool or school-aged children than were optometry-only practices (93% vs 99%; $P < .01$) but were more likely than ophthalmology-only practices (93% vs 73%; $P < .01$). There were no rural or urban differences in the proportion of dual-specialty practices that would provide care to preschool or school-aged children ($P = .22$). In dual-specialty practices, there was no association between the number of optometrists or ophthalmologists in a practice ($P = .40$) and the odds of providing care for children ($P = .51$).

Medicaid Acceptance

Across all cities, most practices would accept Medicaid (64%; range, 38%-92%). Overall, 58% of the practices would both accept Medicaid and evaluate preschool-aged children, and another 6% would accept Medicaid and evaluate school-aged children only. A greater proportion of ophthalmology-listed practices reported that they would accept Medicaid, primarily because of differences between those ophthalmology-listed and optometry-listed practices that evaluate preschool-aged children (Table 2). Dual-specialty practices that evaluated preschool- or school-aged children were more likely to accept Medicaid than were either optometry-only (84% vs 55%; $P < .01$) or ophthalmology-only practices (84% vs 65%; $P = .01$). Regardless of practice type, Medicaid acceptance did not vary significantly by urban or rural status (optometry-listed practices, $P = .17$; ophthalmology-listed practices, $P = .86$; dual-specialty practices, $P = .77$).

Among practices that would evaluate children, each additional eye care provider within the practice was associated with increased odds of Medicaid acceptance in both optometry-listed (OR 1.42, 95% CI: 1.1-1.81) and ophthalmology-listed practices (OR 1.51, 95% CI: 1.11-2.06). This association persisted after adjusting for rural or urban status of the practice (optometry-listed practice OR 1.46, 95% CI: 1.14-1.86; ophthalmology-listed practice OR 1.51, 95% CI: 1.11-2.06). No association was found between the acceptance of Medicaid and the number of optometrists and ophthalmologists in dual-specialty practices ($P = .14$).

DISCUSSION

This study portrays the availability of eye care for children, based on the perspective of the family. Whereas previous studies have focused on individual optometrists and ophthalmologists, we believed that selecting practices as listed in telephone directories is more reflective of a parent's search for an eye care provider. We found that the proportion of eye care practices that reported willingness to provide care for children and accept Medicaid is high. Overall, the proportion of eye care practices that accept Medicaid is similar to Medicaid participation by pediatricians in the private office setting (89% participate in Medicaid, but only 67% will accept all Medicaid patients).¹⁴ Our findings appear to contradict the perception that follow-up eye care for those children with abnormal vision screens is unavailable.

We found patterns in the availability of eye care that may lead to important variations in care. These patterns include the unexpected finding that ophthalmology-listed practices were less likely than optometry-listed practices to provide routine diagnostic evaluations for preschool-aged children, especially in urban cities. The patterns we observed may influence the type of eye care specialist that provides care for children within certain geographic areas. No data are available regarding differences in visual outcome or cost for children who are initially evaluated by an optometrist or ophthalmologist following an abnormal screen.

This study cannot determine whether there is a sufficient supply of eye care specialists to meet the needs of all children. Optimal access to care depends on the fit between eye care supply

and family or child demand.¹⁵ Factors affecting this fit include hours of availability of the eye care specialist, convenience of travel to the clinic, and the competing demand for appointments with other patients. We opted not to ask questions regarding the first available appointment for children because delay, even in many weeks, would not affect treatment outcome. We believe the time to the first available appointment would not fully characterize access and availability of eye care; future work will address this by studying the experiences of those children that have been referred for eye care. A second limitation of this study is that the sample size of dual-specialty practices is small. These practices are not specifically identified in telephone directories, thereby limiting our ability to recruit these practices for study. However, families would also have difficulty identifying these practices. A third limitation is that these findings reflect only 1 state and may not be generalizable to others. Because we included practices from the rural and urban cities with the highest numbers of Medicaid-enrolled children, the findings from this study may also not be generalizable to areas within the state with lower numbers of Medicaid-enrolled children.

Despite these limitations, this study suggests that a pool of eye care specialists is available to evaluate children, including those with Medicaid insurance. To ensure the success of vision screening, either within the primary care practice setting or as part of a mass screening program, more research is needed to determine the relationship between the potential availability of eye care observed in this study and the actual accessibility of eye care.

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Table 1

Proportion of Eye Care Practices, by Urban or Rural Status, That Would Provide Routine Diagnostic Evaluation for Preschool-Aged Children or for School-Aged Children Only

	Urban, % (n = 116)	Rural, % (n = 92)	Optometry Listed <i>P</i> Value	Urban, % (n = 99)	Rural, % (n = 30)	Ophthalmology Listed <i>P</i> Value
Preschool-aged	83	96	<.01	67	93	<.01
School-aged only	16	4	<.01	9	0	(.09)
No children	1	0	NS	24	7	.04

Table 2

Medicaid Acceptance Rates Among Eye Care Practices That Would Provide Routine Diagnostic Evaluation for Children

	Optometry Listed (%)	Ophthalmology Listed (%)	<i>P</i> Value
Preschool-aged	107/184 (58)	72/94 (77)	<.01
School-aged only	15/23 (65)	4/9 (44)	NS
Overall	122/207 (59)	76/103 (74)	.01