

Socioeconomics of Retinopathy of Prematurity In-Hospital Care

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Objective: To determine if there was any uniform experience across the United States relative to retinopathy of prematurity (ROP) services provided, reimbursement, and malpractice insurance coverage.

Methods: An online pediatric ophthalmology listserv poll queried pediatric ophthalmologists regarding ROP screening, reimbursement, malpractice insurance, and call and consult coverage.

Results: Compensation for providing ROP services is quite variable around the United States. The Southern respondents reported the highest contract income while the Northeast reported the lowest. The mean annual contract income was \$63 753 and the median annual con-

tract income was \$39 000. There was an even distribution between physicians vs hospitals providing malpractice coverage. There was also a fairly even distribution between physicians who do and do not provide consult and call coverage.

Conclusions: Nationwide, there is no standard rate of compensation for ROP in-hospital care, coverage of liability insurance, or providing additional consult or on-call services. Income generation performing ROP screening examinations is roughly half what a pediatric ophthalmologist can generate by seeing patients in the clinic or performing surgery.

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RETINOPATHY OF PREMATURITY (ROP) is a potentially sight-threatening disease that affects children from all nations of the world. Premature infants are now surviving in greater numbers because of technological and medical advancements made over the past 50 years. The consequence of such advancements is the significantly increased risk of visual morbidity in very low-birth-weight infants. Retinopathy of prematurity screening and treatment has been found to be a cost-effective endeavor.¹ Unfortunately, the physician who provides these services is at significant risk for high-dollar malpractice claims.^{2,3}

Reimbursement for providing ROP screening services tends to be less than that which ophthalmologists could generate providing outpatient clinical care or performing ophthalmic surgery. The process tends to be time-consuming, often requiring physicians to travel to various hospitals away from their regular work site. Additional costs to the practitioner are often incurred for compensating administrative staff members to coordinate outpatient care

once the infants are discharged from the hospital. Compliance with recommended follow-up is exceedingly important, since many of the poor but preventable visual outcomes result when at-risk infants are not brought in for follow-up examinations after hospital discharge when the child is still at risk for blinding proliferative ROP.^{4,5}

There is no question that screening and treatment of ROP is an essential service to society that can significantly decrease morbidity. Our goal for this survey was to determine if there was any uniform experience across the United States relative to ROP services provided, reimbursement, and malpractice insurance coverage.

METHODS

An online pediatric ophthalmology listserv poll queried pediatric ophthalmologists regarding ROP screening, reimbursement, malpractice insurance, and call and consult coverage. The responses were reviewed and summarized based on geographic location: Northeast, Midwest, South, and West. The population size of each respondent's location was determined by US census data.

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Table 1. Respondent Characteristics

Respondent	Region	No. of Examinations	Frequency of Examinations	Payments (Contract/Collections)
A	NE	NA	Weekly	\$25 000/y + Collections
A	NE	NA		\$30 000/y + Collections
B	NE	1-6/wk	Weekly	\$200/Examination only
B	NE	10-20/y	Biweekly	\$200/Examination only
B	NE	1-10/y	Every few weeks/monthly	Collections only
B	NE	1-10/y	Every few weeks/monthly	Collections only
C	NE	10-20/y	Every few weeks/monthly	\$30 000/y Only
C	NE	10-15/wk	Weekly	\$10 000/y + Collections + benefits
C	NE	8-12/wk	Weekly	\$30 000/y Only
C	NE	10-20/y	Every few weeks/monthly	\$25 000/y Only
D	S	NA	NA	\$216 000/y Only
D	S	NA	NA	\$135 000/y Only
E	S	25-30/wk	Weekly	\$120 000/y Only
F	S	8-12/wk	Weekly	\$80 000/y + Collections
G	MW	NA	Weekly	Half clinic day/wk + administrative costs
H	MW	15-16/y	Every few weeks/monthly	\$1500/Visit only
H	MW	2-6/wk	Weekly	\$80 000/y Only
H	MW	NA	NA	\$200-\$250/Examination only
I	MW	8-10/wk	Weekly	\$76 050/y Only
J	MW	2-5 biweekly	Biweekly	\$48 000/y + Collections
K	W	5-13/wk	Weekly	\$30 000/y + Collections
K	W	4-6/wk	Weekly	\$20 000/y + Collections
L	W	10/1k	Weekly	\$60 000-70 000/y Only

Abbreviations: MW, Midwest; NA, not available; NE, Northeast; S, South; W, West.

Table 2. Responsibility for Respondents' Insurance Coverage

Respondent	Region	Insurance	On Call/Consults
A	NE	Hospital provided	NA
A	NE	Physician provided	NA
B	NE	Hospital provided	No
B	NE	NA	No
B	NE	NA	Yes
B	NE	NA	Yes
C	NE	NA	No
C	NE	NA	No
C	NE	NA	No
D	S	Physician provided	NA
D	S	Physician provided	NA
E	S	Physician provided	NA
F	S	NA	NA
G	MW	Hospital provided	NA
H	MW	NA	No
H	MW	NA	Yes, separate contract
H	MW	NA	Yes, separate contract
I	MW	NA	No
J	MW	Physician provided	NA
K	W	Hospital provided	Call yes/ICU consults only
K	W	Hospital provided	Yes
L	W	Hospital provided	Yes

Abbreviations: ICU, intensive care unit; MW, Midwest; NA, not available; NE, Northeast; S, South; W, West.

RESULTS

Twelve pediatric ophthalmologists responded to the query. The geographic locations of the respondents were as follows: 3 from the northeastern states, 3 from the south-

ern states, 4 from the Midwest, and 2 from the western United States. See **Table 1** for demographic information on the respondent, the number of ROP screening examinations, frequency of examinations, and payment for services reported. Half of the respondents screened at more than 1 location, the mean being 2. The neonatal intensive care units were located in a number of various settings from small community hospitals to large inner-city hospitals. There was an even distribution among level 2 and 3 neonatal intensive care units.

The lowest payments were reported by respondent B at \$200 per examination and highest, by respondent D with an annual contract of \$216 000/y. The method of determining contract income amounts was described by only 2 respondents. Respondent G calculated clinic collections for a half day of clinic and added administrative costs to determine the contract amount. Respondent I calculated his or her contract amount by determining the time away from the office (6.5 hours) and multiplied it by \$225.

Half of the respondents noted they were responsible for providing malpractice insurance coverage while the other half had their insurance covered by the hospital (**Table 2**). Approximately half of the respondents noted that they were responsible for inpatient consults or emergency call coverage. Physicians billed and collected for their services at 9 of 23 screening locations. Seven of the 9 physicians billed and collected in addition to their contract income (Table 1). The mean annual contract income was \$63 753 and the median annual contract income was \$39 000.

We additionally looked at the average reimbursement from a half day of ROP screening examinations and compared it with an average half day of surgery and an

average half day of clinic services within our own practice. The reimbursement for ROP screening services generally was half of the clinical revenue generated from comparable time spent in outpatient surgery or clinic services. The income discrepancy is illustrated with a hypothetical half day of clinic vs a half day dedicated to ROP screening in **Table 3**. Medicare allowable reimbursement rates (Colorado 2009) for various *Current Procedural Terminology* codes were used to illustrate income generation. This hypothetical scenario revealed that a typical ROP screening day would generate half the income compared with an equal amount of time spent in the clinic. The *Current Procedural Terminology* codes chosen for the ROP screening day were based on levels of service suggested by the billing service employed by our practice.

If an average annual income of a pediatric ophthalmologist is estimated to be \$120 000 to \$300 000, then the income of 1 "half day" is assumed to be between \$12 000 and \$30 000.⁶ Then, accordingly, the direct cost in the way of reduced reimbursement for those pediatric ophthalmologists involved in providing a hospital's neonatal intensive care unit ROP screening can be assumed to be at least \$6000 to \$15 000 per half day (\$12 000 to \$30 000 per half day \times 50%). The reduced reimbursement of course does not include the additional costs incurred by administering an ROP service.

COMMENT

Compensation for providing ROP screening services around the United States is variable. The Southern respondents reported the highest contract income while the Northeast reported the lowest. There was an even distribution between physicians vs hospitals providing malpractice coverage. There was also a fairly even distribution between physicians who do and do not provide consult and call coverage. The details of their responsibilities are beyond this survey. Income generation performing ROP screening examinations is roughly half what a pediatric ophthalmologist can generate by seeing patients in the clinic or performing surgery.

The limitations of this analysis are the small sample size and survey format. Approximately 500 pediatric ophthalmologists within the United States have access to the online pediatric ophthalmology listserv. However, only 40 to 50 members contribute to the listserv on a regular basis. Several members communicated with us that they were reluctant to share salary information. This reluctance to share salary information may explain the small sample size. A separate question posted on the pediatric ophthalmology listserv yielded twice the number of respondents. The question queried members whether pediatric ophthalmologists or retina specialists screen and treat ROP within their practice. There were 21 US and 4 international respondents. Eighty percent of all respondents reported that they screened and treated ROP and only 20% reported that a retina specialist routinely performed screening examinations and/or laser surgery for ROP. A future study with a higher number of respondents would be useful.

Table 3. Hypothetical Half-Day Clinic vs ROP Screening Day

CPT Code	No. of Patients	Medicare Allowable, ^a \$	Subtotal, \$
Hypothetical Half-Day Clinic			
99244 Level 4 consult	5	151.62	758.10
99203 Level 3 new	3	66.87	200.61
99213 Level 3 established	6	44.25	265.5
99214 Level 4 established	6	68.47	410.82
92015 Refraction	8	18.59	148.72
92060 Sensorimotor examination	5	34.65	173.25
Total			1957.00
Hypothetical ROP Screening Day			
99254 Level 4 inpatient consult	4	163.52	654.08
99232 Level 2 inpatient subsequent	6	66.08	396.48
Total			1050.56

Abbreviations: CPT, *Current Procedural Terminology*; ROP, retinopathy of prematurity.

^aMedicare allowable reimbursement rates for Colorado 2009.

CONCLUSIONS

The screening and treatment of ROP is a cost-effective endeavor. However, poor reimbursement and risk of multi-million-dollar malpractice settlements have made providing this service undesirable. Hospitals can provide monetary support and malpractice coverage to encourage physicians to provide care to this vulnerable population.

The results of this survey reveal there is no uniform compensation within the United States for the ophthalmologist's time, efforts, and risk of liability to provide this service. The small number of respondents to the survey may not be representative of the experience of most pediatric ophthalmologists in the United States. A different method of data collection such as telephone interviews or surveys mailed directly to pediatric ophthalmologists might yield more representative information in a future study.

Ophthalmologists doing the ROP examinations at multiple hospitals accept a professional burden with many hidden costs, such as the time involved in traveling to the distant neonatal intensive care units and maintaining records to track premature babies to ensure follow-up examinations take place at the appropriate time. Consequently, a hospital requiring ROP services should be expected to at least cover the administrative costs and opportunity costs for providing this important, vision-saving ROP coverage.

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