

## Choice of intraocular lens for pediatric cataract surgery: Survey of AAPOS members

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Primary intraocular lens (IOL) implantation in select children having cataract surgery is an accepted method of treating aphakia in children. Following approval by the Institutional Review Board of the Medical University of South Carolina, an 11-question, web-based survey (Figure 1) was sent to 876 physicians representing the membership of the American Association for Pediatric Ophthalmology and

Strabismus (AAPOS). The responses were received anonymously on a secured server.

Forty-four of 876 e-mails were returned as undeliverable. Of the 832 that were delivered, 329 responses were received for an overall response rate of 39.5%. Two-hundred twenty-seven of 329 (69.0%) of the respondents were implanting IOLs in children (Table 1). Subsequent analyses summarized these 227 responses (Tables 2 to 5).

Pediatric IOL Survey	
1. Location of your current practice	USA Canada Other _____
2. Are you currently implanting an IOL in children (age <18 years)?	Yes No  If you answered "yes," please proceed with the following questions.
3. Approximately, how many pediatric IOL implantations do you perform each year?	
4. What is your lens of choice for IOL bag fixation in children?	Rigid PMMA Foldable
5. If foldable, which specific IOL do you routinely use for IOL bag fixation in children?	AcrySof Natural-SN series AcrySof single-piece-SA series AcrySof 3-piece-MA series Sensar Silicone Other (please specify) _____
6. What is your lens of choice for IOL sulcus fixation in children?	Rigid PMMA Foldable
7. If foldable, which specific IOL do you routinely use for IOL sulcus-fixation in children?	AcrySof Natural-SN series AcrySof single-piece-SA series AcrySof 3-piece-MA series Sensar Silicone Other (please specify) _____
8. Would you consider implanting a multifocal/accommodating IOL in children?	Yes No Not sure
9. If yes, which IOL?	AcrySof ReSTOR Crystalens ReZoom Other (please specify) _____ Not sure
10. If yes, above what age?	
11. Any comments?	

Figure 1. Pediatric IOL survey sent to AAPOS members.

Table 1. Location of current practice. Are you currently implanting an IOL in children <18 years-of-age?

Response	Number of Responses (%)		
	US	Non-US	All
Yes	173 (65.3)	54 (84.4)	227 (69.0)
No	92 (34.7)	10 (15.6)	102 (31.0)
Total	265	64	329

Table 2. Approximately how many pediatric IOL implantations do you perform each year?

	US	Non-US	All
Median	8	20	10
Mean	12	37	18
Total	2133	1911	4044

Table 3A. What is your lens of choice for IOL bag fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
Foldable	169 (97.7)	47 (87.0)	216 (95.2)
PMMA	4 (2.3)	7 (13.0)	11 (4.8)
Total	173	54	227

PMMA = poly(methyl methacrylate)

Table 3B. What type of IOL material do you prefer for bag fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
Hydrophobic acrylic	164 (95.9)	46 (85.2)	210 (93.3)
Hydrophilic acrylic	0	1 (1.9)	1 (0.4)
Silicone	3 (1.8)	0	3 (1.3)
PMMA	4 (2.3)	7 (13.0)	11 (4.9)
Total	171*	54	225*

PMMA = poly(methyl methacrylate)

\*Two respondents from US, preferring foldable IOLs, did not specify type of IOL.

**Table 3C.** What type of IOL do you prefer for bag fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
AcrySof	161 (94.2)	42 (77.8)	203 (90.2)
Sensar	3 (1.8)	4 (7.4)	7 (3.1)
Centerflex	0	1 (1.9)	1 (0.4)
Silicone	3 (1.8)	0	3 (1.3)
PMMA	4 (2.3)	7 (13.0)	11 (4.9)
Total	171*	54	225*

PMMA = poly(methyl methacrylate)

\*Two respondents from USA, preferring foldable IOLs, did not specify type of IOL.

**Table 4C.** What type of IOL do you prefer for sulcus fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
AcrySof	120 (71.8)	23 (44.3)	143 (65.3)
Sensar	8 (4.8)	2 (3.8)	10 (4.6)
Domilens	0	2 (3.8)	2 (0.9)
Silicone	3 (1.8)	0	3 (1.4)
PMMA	36 (21.6)	25 (48.1)	61 (27.8)
Total	167	52	219*

\*Eight respondents did not specify type of IOL (written as foldable).

**Table 3D.** Which model of AcrySof lens do you prefer for bag fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
MA series	46 (28.6)	23 (57.5)	69 (34.3)
SA series	82 (50.9)	11 (27.5)	93 (46.3)
SN series	33 (20.5)	6 (15.0)	39 (19.4)
Total	161	40	201*

\*Two respondents did not specify model.

**Table 4D.** What series model of AcrySof lens do you prefer for sulcus-fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
MA series	103 (85.8)	19 (82.6)	122 (85.3)
SA series	14 (11.7)	4 (17.4)	18 (12.6)
SN series	3 (2.5%)	0 (0.0%)	3 (2.1%)
Total	120	23	143

**Table 4A.** What is your lens of choice for IOL sulcus fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
Foldable	134 (78.8)	27 (51.9)	161 (72.5)
PMMA	36 (21.2)	25 (48.1)	61 (27.5)
Total	170	52	222*

PMMA = poly(methyl methacrylate)

\*Five respondents did not specify choice.

**Table 5A.** Would you consider implanting a multifocal/accommodating IOL in children?

IOL	Number of Responses (%)		
	US	Non-US	All
Yes	65 (37.5)	4 (7.5)	69 (30.5)
No	42 (24.3)	30 (56.6)	72 (31.9)
Not sure	66 (38.2)	19 (35.9)	85 (37.6)
Total	173	53	226*

\*One respondent did not answer.

**Table 4B.** What type of IOL material do you prefer for sulcus fixation in children?

IOL	Number of Responses (%)		
	US	Non-US	All
Hydrophobic acrylic	128 (76.6)	25 (48.1)	153 (69.9)
Hydrophilic acrylic	0	2 (3.8)	2 (0.9)
Silicone	3 (1.8)	0	3 (1.4)
PMMA	36 (21.6)	25 (48.1)	61 (27.8)
Total	167	52	219*

PMMA = poly(methyl methacrylate)

\*Eight respondents did not specify type of IOL (written as foldable).

**Table 5B.** If "yes" to question 8, which multifocal/accommodating IOL would you consider implanting in children?

IOL	Number of Responses (%)		
	US	Non-US	All
ReSTOR	30 (31.3)	3 (33.3)	33 (31.4)
Crystalens	3 (3.1)	0	3 (2.9)
ReZoom	2 (2.1)	1 (11.1)	3 (2.9)
Not sure	61 (63.5)	5 (55.6)	66 (62.8)
Total	96	9	105

Compared with the IOL material for adults, this survey shows little diversity in the IOL type and brand used in children. The AcrySof hydrophobic acrylic IOL (Alcon Laboratories, Inc.) was the overwhelming choice of our respondents. The 1-piece AcrySof IOL (SA and SN series) was preferred for in-the-bag implantation and the 3-piece AcrySof IOL (MA series), for sulcus fixation. The pediatric surgeons were routinely low volume cataract surgeons, with a median surgical case load of 8 per year in the United States and 20 per year internationally (Table 2). We do not know how many of these surgeons also perform adult cataract surgery.

Multifocal IOLs are rarely used in children because of the refractive shift that occurs over time. If an eye implanted with a multifocal IOL becomes increasingly myopic, the benefit of the multifocal

technology diminishes and, ironically, the child becomes more spectacle-dependent than those with a monofocal IOL. Our survey indicated an interest in multifocal IOLs for children. However, many respondents commented (question 11 was open for comments) on their concern about the use of multifocal/accommodating IOLs in children (related to refractive shift and the potential for degradation of amblyopia due to loss of contrast sensitivity). They stated a reluctance to use multifocal IOLs in children until long-term follow-up on these IOLs is available. As this technology evolves, pediatric surgeons will actively debate the indications for children. For now, hydrophobic acrylic monofocal IOLs are the lenses of choice for children, with older teenagers being considered for multifocal implantation if they meet the adult criteria.