Results: 25 infants had Retcam and FA performed at an average 68 weeks post-menstrual age (PMA). Of these,19 infants had second FA at an average 98 weeks' PMA and 10 infants had third FA at an average 120 weeks' PMA. Average GA and BW was 24.7 weeks and 675 g, respectively. Average PMA at first IVB treatment was 37.1 weeks. 8 eyes of 6 infants received repeat IVB for recurrent stage 3 at an average 46.6 weeks. The average number of IVB treatments was 2. All 25 infants continued to show inhibited retinal vasculature in zone 2. Twenty-two of 25 infants had or conventional FA features, which included avascular retina, peripheral leakage, shunts, abnormal vessels branching and tangles. Three infants showed unconventional FA findings; significant posterior vascular tortuosity, extreme peripheral vascular branching, diffuse hyperfluorescence at the regressed proliferation site. Of the 3 infants only 1 had late tractional proliferation at 92 weeks' PMA which was treated with barrier laser.
Discussion: Unconventional FA features post-IVB may need close long-term follow-up for early detection of sight-threatening complications.
Conclusions: FA features can categorize infants as low and high-risk, which would be beneficial in redefining the ROP follow-up guidelines post-IVB treatment.

005 A novel algorithm for visual field testing in pediatric neuro-ophthalmic disease using saccadic vector optokinetic perimetry. Bilal K. AlWattar, D. Luisa Mayer, Ronald M. Hansen, Gena Heidary
Introduction: Formal methods for visual field testing in young children are limited. Saccadic vector optokinetic perimetry (SVOP), which utilizes eye tracking technology, has been introduced as a potential method for visual field assessment. This study seeks to determine the validity of a novel visual field algorithm which was specifically tailored for testing pediatric patients with neurologic disease using SVOP.
Methods: We prospectively compared a novel 33 point visual field algorithm developed at Boston Children's Hospital using SVOP to modified automated Humphrey perimetry testing protocol to assess the validity of the new method in pediatric patients.
Results: Eighteen participants (56% female) were enrolled between the ages of 10-18 (median, 16) years. Ten subjects had normal visual fields, and 8 had known visual field loss; 3 had bitemporal hemianopias, 3 had homonymous hemianopias, and 2 had quadrantanopias. Successful completion of both testing paradigms occurred in 17/18 patients. The sensitivity of the new algorithm was 70%, the specificity was 91.5%, the positive predictive value was 62.4%, and the negative predictive value was 94%.
Discussion: SVOP testing with the new BCH pediatric neuro-ophthalmic disease algorithm was relatively sensitive in detecting neurologic visual field defects and was able to exclude the presence of visual field loss with high predictability.
Conclusions: Compared with standard perimetry, SVOP testing using this novel algorithm has the potential to detect visual field loss from underlying neurologic disease in pediatric patients and warrants further evaluation in a larger cohort of patients.

006 Short- and long-term effects of aflibercept on retinal vascular development in the oxygen-induced retinopathy mouse model of retinopathy of prematurity. Sarina M. Amin, Jade Guevara, Andres Gonzalez, Wesley C. Smith, Swati Agarwal-Sinha
Introduction: The goal of this study was to assess the effect of aflibercept on retinal vasculature and determine potential long-term detrimental effects in the oxygen-induced retinopathy mouse model.
Methods: Eighty-one mouse eyes were randomly assigned to a room air control ($n = 21$) or hyperoxia with 75% oxygen ($n = 60$). The hyperoxia eyes were divided into three groups: 0 ng ($n = 13$), 100 ng ($n = 25$), or 1000ng ($n = 22$) of aflibercept. Intravitreal aflibercept injections were administered on day 14 of life. The eyes were assigned to be enucleated 3 days (P17) or 11 days (P25) post-injection. Stained flat mount retina preparations were processed and areas of perfusion and nonperfusion were quantified using Image J software. The ratios of nonperfused area of the hyperoxic groups to perfused area of the control groups were determined and a two-sample test was performed.
Results: Only the P25 hyperoxic control eyes had a statistically significant larger ratio of nonperfusion compared to the 1000ng eyes ($P < 0.05$); however, there was no significant difference between the P17 groups in terms of nonperfusion. There was a statistically significant decrease ($P < 0.05$) in the ratio of nonperfusion for the 1000ng treatment dose in the P25 group compared to the P17 group.
Discussion: These results suggest that the effect of aflibercept dissipates between P17 and P25, and that normal retinal vasculature is not completely inhibited at the 1000 ng dose by P25.
Conclusions: This study highlights the efficacy of aflibercept in the mouse model of ROP. It also ascertains that aflibercept does not inhibit the development of normal retina long-term.

007 Trabeculotomy ab interno with the Trab360 device for childhood glaucomas. Raymond G. Areaux Jr, Alana L. Grajewski, James D. Brandt, Beth Edmunds, Elena Bitrian
Introduction: The Trab360 (Sight Sciences) device facilitates up to 360° of trabeculotomy ab-interno via clear corneal incision (Trab360). This study investigated the success rate and complications of Trab360 in childhood glaucomas.
Methods: Multicenter retrospective review of eyes with childhood glaucomas that underwent Trab360 with at least 3 months follow-up. Postoperative IOP less than 25 mm Hg with or without medications and no additional glaucoma surgery defined success.
Results: Forty-eight eyes of 43 patients were included. Mean age at surgery was 83 months; 50% occurred prior to 20 months. 50% were right eyes; 43% were male. Mean treatment was 293°. Mean follow-up was 14.8 months. Preoperative IOP was 31.2 ± 6.9 mm Hg; postoperative reduction of IOP was 17 (95% CI 14.3-19.7) mm Hg. Mean number of preoperative glaucoma medications was 2.7 ± 1.4; mean decrease postoperatively was 1.2 (95% CI, 0.7-1.7). 69% (95% CI, 53.6%-80.9%) of eyes succeeded. Among the 42 eyes for which Trab360 was the first glaucoma surgery, 71.4% (95% CI, 55.2%-83.8%) succeeded. 83.3% (95% CI, 61.8%-94.5%) of PCG eyes succeeded. Among PCG eyes for which Trab360 was the first glaucoma surgery, 85.7% (95% CI, 62.6%-96.2%) succeeded. Two eyes (4.2%) suffered partial cyclodialysis. There were no other significant complications.
Discussion: Trab360 success resembles literature on other angle surgeries for childhood glaucomas. Good surgical technique and caution in high-risk angles is imperative to avoid cyclodialysis. Our study is limited by the imperfections inherent in any retrospective analysis.
Conclusions: Trabeculotomy ab interno with the Trab360 device is effective and safe for treating childhood glaucomas, especially PCG.

008 Outcomes and complications of simultaneous bilateral cataract surgery (SBCS) in children—a 10-year review. Vishaal Bhambhwani, Sina Khalili, Maram Isaac, Asim Ali, Nasrin Tehrani, Kamiar Mireskandari
Introduction: SBCS has been viewed with caution by the ophthalmology community due to risk of devastating complications in both

eyes. There is paucity of literature in children, for whom significant benefits can be derived by operating both eyes under the same anesthesia.

Methods: Retrospective analysis of children who underwent SBCS from 2008-2018 was performed. Procedures were consented to by parents following detailed discussion about risks/benefits of surgery in two sessions versus one. Data on outcomes and complications (ophthalmological, anesthesia related) up to 8 weeks postoperatively is presented.

Results: Thirty-seven patients (74 eyes) (mean age, 4.4 months) (21F:16M) underwent bilateral lens aspiration with anterior vitrectomy (6 with, 68 without IOL). Average ASA score was 2.1. 19 were admitted for observation post-surgery (per anesthesia protocol). There were no devastating anesthesia-related complications; however, one with aortic stenosis needed phenylephrine support, one was managed with re-intubation (laryngeal spasm post-op) with no further complications. There were an average of 3.89 follow-up visits (in 8 weeks postoperative period) occurred. One patient had fibrinous reaction, and another glaucoma (needing goniotomy) in both eyes associated with Wolfram and Lowe syndromes, respectively. One eye had epithelial defect (resolved spontaneously). There was no endophthalmitis.

Discussion: SBCS in children have several potential advantages including avoidance of multiple anaesthesia, faster visual rehabilitation, reduced postoperative follow-up visits, cost savings to parents and healthcare systems.

Conclusions: Outcomes and complication rates of SBCS in this study were comparable to reported literature for unilateral procedures. SBCS may be offered to parents as a viable option; however, studies with larger sample sizes are desirable.

009 Validation of the G-ROP modified retinopathy of prematurity screening criteria. Gil Binenbaum, Lauren A. Tomlinson, Alejandra de Alba Campomanes, Edward Bell, Pamela Donohue, David Morrison, Graham Quinn, Michael X. Repka, David Rogers, Michael Yang, Yinxi Yu, Gui-shuang Yang

Introduction: The Postnatal Growth and ROP Study (G-ROP-1) developed modified screening criteria with 100% sensitivity for ETROP type-1 ROP and 30% reduction of infants requiring examinations in a retrospective development cohort of 7,483 infants from 29 North American hospitals in 2006-2012. Infants meeting one or more criteria undergo examinations: GA $<$28 weeks; or BW $<$1051 g; or weight gain$<$120 g, $<$180 g, or $<$170 g during ages 10-19, 20-29, or 30-39 days, respectively; or hydrocephalus. We evaluated the generalizability of the G-ROP screening criteria in a new cohort of at-risk infants.

Methods: We conducted a prospective validation study (G-ROP-2) of infants examined at 41 North American hospitals (25 G-ROP-1 hospitals, 16 new hospitals) in 2015-2017. Primary outcomes were sensitivity of G-ROP criteria for type-1 ROP and reduction in infants meeting criteria to receive examinations.

Results: A total of 3,980 infants were studied (median BW, 1072 g [range, 350-2190], GA, 28 weeks [22-38]). In this new cohort, the G-ROP criteria correctly predicted 219/219 type 1 (sensitivity, 100%; 95% CI, 98.3%-100%) and 253/256 treated cases, reducing infants undergoing screening by 36% (95% CI, 34%-37%). In a combined G-ROP-1/G-ROP-2 cohort of 11,463 infants, the criteria predicted 677/677 type 1 (100%; 99.4%-100%) and 767/770 treated cases, reducing infants meeting criteria by 33% (32%-34%); while current criteria (BW $<$1501 g or GA $\leq$30 weeks 0 days without subjective "poor postnatal course" criterion) predicted 674/677 type 1(99.6%; 98.7-99.8%) and 766/770 treated cases.

Discussion: These large cohorts provide evidence-based screening criteria that have higher sensitivity and specificity (less infants receive examinations) for type 1 ROP than currently recommended guidelines.

Conclusions: The G-ROP modified screening criteria were generalizable upon validation and could be used clinically to greatly reduce the number of infants requiring examinations.

010 Baseline and clinical factors associated with response to binocular amblyopia treatment. Eileen E. Birch, Reed M. Jost, Krista R. Kelly, Joel N. Leffler, Lori Dao, Cynthia L. Beauchamp

Introduction: We previously reported results from our primary cohort (n = 28) enrolled in a randomized clinical trial (NCT02365090) that reported binocular amblyopia treatment was effective in treating childhood amblyopia and more efficacious than patching (Kelly, Jost et al JAMA Ophthalmol 2016). Completion of enrollment into our preplanned secondary cohort combined with the primary cohort (n = 48), has now provided sufficient power to determine whether there exist baseline and/or clinical factors that are predictive of response to binocular treatment.

Methods: 48 amblyopic children (4-10 years) were randomly assigned binocular game or patching treatment at home. The primary outcome was change in amblyopic eye best-corrected visual acuity (AE BCVA) at the 2-week visit. Change in stereoacuity was a secondary outcome. Baseline factors: age at enrollment, AE BCVA, stereoacuity, suppression. Clinical factors: etiology, age at diagnosis, prior treatment, baseline alignment.

Results: AE BCVA improvement was greater with the binocular game than patching (mean $\pm$ SD = 0.14 $\pm$ 0.08 vs 0.07 $\pm$ 0.09 logMAR; t = 3.00, P = 0.004). Improvement from baseline was significant for the binocular game (95% CI, 0.11-0.17 logMAR) and patching (95%CI: 0.03-0.10 logMAR]. Stereoacuity improvement was greater with the binocular game than patching (0.06 $\pm$ -0.18 vs $-$0.06 $\pm$ 0.23 log arcsec; t = 2.07, P = 0.04). Only one factor was associated with AE BCVA change with game treatment; orthotropic children had greater improvement than children with 2-4pd esotropia (0.17 $\pm$ 0.07 vs 0.09 $\pm$ 0.05 logMAR; t = 2.37, P = 0.03). In addition, change in AE BCVA was significantly correlated with hours of game play (r = 0.67; $P <$ 0.0001).

Discussion: Binocular amblyopia treatment was effective in treating childhood amblyopia, especially among orthotropic children who had more game play time.

Conclusions: Orthotropia and adherence were associated with binocular amblyopia treatment success.

011 Outcomes of bilateral cataracts removed in infants 1 to 7 months of age concurrent with the Infant Aphakia Treatment Study. Erick D. Bothun, Deborah K. Vanderveen, David A. Plager, Sharon Freedman, Rupal H. Trivedi, Nancy N. Diehl, M. Edward Wilson, Elias I. Traboulsi, Jill S. Anderson, Nancy C. Weil, Allison R. Loh, David Morrison, Kimberly G. Yen, Scott Lambert

Introduction: This study evaluates outcomes of bilateral cataract surgery in infants ages 1 to 7 months performed by Infant Aphakia Treatment Study (IATS) investigators during IATS recruitment and compares them to IATS outcomes of unilateral cases.

Methods: Retrospective clinical study at 10 IATS sites.

Results: 178 eyes (89 children) were identified with median age of 1.8 months (range, 1-7) at cataract surgery. 51 (29%) eyes of 26 patients