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2022 SAMBA ANNUAL MEETING
MAY 11 – 14, 2022



Challenges in Ambulatory Pediatric Ophthalmic Anesthesia

Alecia L. Sabartinelli Stein, MD
Associate Professor of Clinical Anesthesia
Associate Program Director of Anesthesia Residency Program
Director of Simulation Curriculum – UM/JMH Center for Patient Safety
Department of Anesthesiology, Perioperative Medicine and Pain Management
University of Miami - Miller School of Medicine

UNIVERSITY OF MIAMI

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Disclosures

- none


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Learning Objectives

- Compare and contrast of the anatomy of the infant and pediatric vs. adult eye and orbit.
- Identify the characteristics unique to children undergoing ophthalmologic procedures in an ambulatory setting.
- List the different available techniques for the extremely anxious child with a history of multiple exposures to the perioperative environment.
- Anticipate and plan for the challenged surrounding pediatric ophthalmic anesthesia.

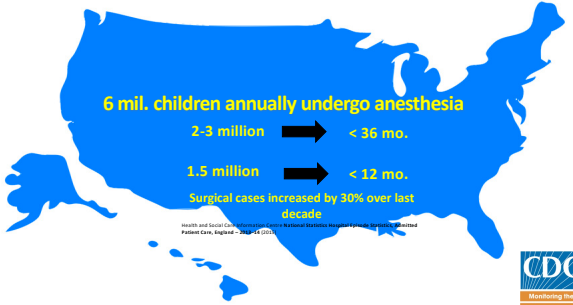


Anesthesiology, 2021

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6 mil. children annually undergo anesthesia

2-3 million → < 36 mo.
1.5 million → < 12 mo.

Surgical cases increased by 30% over last decade

Health and Social Care Statistics: The Annual Report on the Health of the Nation
Patient Care, England – August 12, 2021

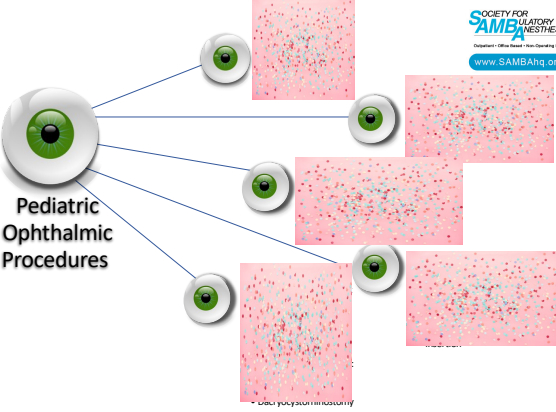
CDC
Monitoring the Nation's Health

DeFrances, C.J., Cullen, K.A., and Kozak, L.J. Vital Health Stat. 2007;13: 1-209

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Pediatric Ophthalmic Procedures

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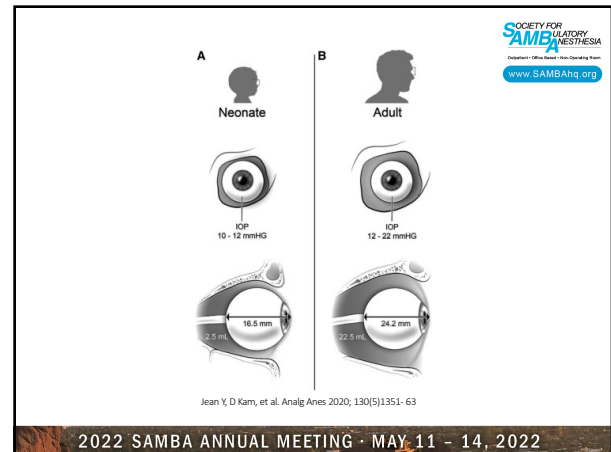


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CHALLENGE

Is this child optimized or appropriate for the ambulatory setting?

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Is this child optimized or appropriate: the neonate?

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Eye Surgery in the Neonate and Infant

Neonates and infants often present early in life with eye conditions requiring surgery or EUA

- Retinal issues**
 - Retinopathy of prematurity
 - Retinoblastoma
 - Retinal detachments
- Congenital glaucoma**
- Congenital cataracts**

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Challenge



The Repeat Offender

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Pediatric Ophthalmic Procedures

Ophthalmologic examination

- General examination
- Fundoscopy
- IOP measurements
- F/U retinoblastoma

Posterior Chamber/Retinal

- Vitrectomy/vitreoretinal surgery
- Retinopathy of prematurity, laser, intravitreal injection of chemo agents
- Electroretinography

Anterior Chamber

- Glaucoma/reduction of IOP
- Goniotomy
- Trabeculectomy/trabeculotomy
- Cataract:
 - Lensectomy +/- artificial lens insertion

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Challenge: The Repeat Offender

Case study:
4 wk healthy infant with white out reflex in Left Eye

Anesthetic exposures: range 10-30 times until “discharged”

EUA's every 6wk – 2months (early/acute phase)
MRI every 6m – 1 year
Sibling surveillance

More surveillance EUA's (last maintenance)
With lasering, intravitreal chemo injections



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Challenge: The Repeat Offender

Severe anxiety, fear of hospital environment
Mask intolerance
Emergence delirium

Down-stream claustrophobia
Symptoms of PTSD

Preoperative anxiolysis: challenge

Creative techniques:
Difference combinations of pharmacologic anxiolytics
Hide agents in juice box
VR distraction technology
Child life specialists

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Challenge: The Repeat Offender



Dragon. Courtesy of CHARIOT, Stanford



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Challenge: The Repeat Offender



Sevo the Dragon. Courtesy of CHARIOT, Stanford

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Challenge: The Repeat Offender




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Challenge




Choice of Anesthesia Technique

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MAC sedation?
Mask anesthesia?
IV?
Airway device?
Deep extubation?
Wake up?



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CHALLENGE



Traumatic Eye Injury

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The Open Globe

Case: 5-year-old healthy boy with traumatic eye injury


Story:

- Playing with a tazor gun (!?!)
- Running with pencil
- Brother shot patient with a BB gun
- Dad hooked kid with a fish-hook

Booked for emergent surgery, corneal laceration repair, foreign body removal

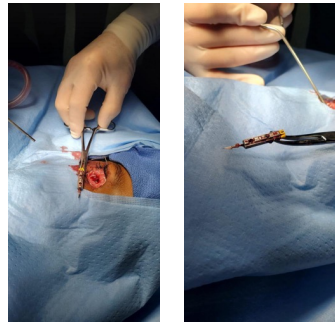

NPO status: waffles & bacon at 8:00am

IV?
Inhalational induction?
IOP fluctuations?



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Challenge



Environment

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Perioperative environment




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Perioperative environment
Electroretinography

Retinograms require complete blackout
Preop blindfolding
Intraoperative darkness

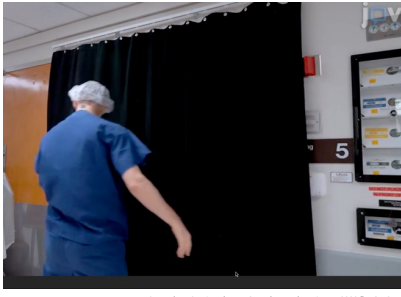


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Perioperative environment



Lam B, C Mendoza-Santestaban, A Gonzalez, et al. *J. Vis. Exp.* 2020 (J), e61734

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Postoperative Environment

Adjustable sutures for strabismus
Awake for postop check
Sedated for adjustment
Where?

Gas bubble
Kids lie flat x 2 hrs
Where?

Extended postop monitoring
Workflow?
Where, what level of monitoring?



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- Em



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