

SOCIETY FOR AMBULATORY ANESTHESIA
2022 SAMBA ANNUAL MEETING
MAY 11 - 14, 2022

Outpatient • Office Based • Non-Operating Room


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/JM Center for Patient Safety
Department of Anesthesiology, Perioperative Medicine and Pain Management
University of Miami - Miller School of Medicine

UNIVERSITY OF MIAMI


1

SOCIETY FOR AMBULATORY ANESTHESIA
2022 SAMBA ANNUAL MEETING - MAY 11 - 14, 2022

Outpatient • Office Based • Non-Operating Room

www.SAMBAhq.org

Disclosures

- none

2

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

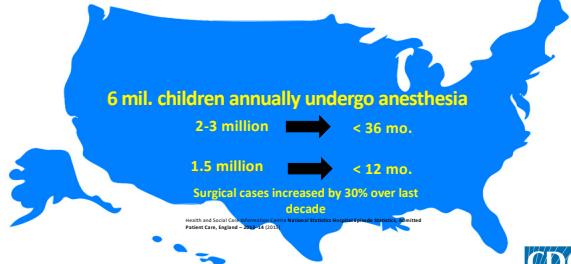
2022 SAMBA ANNUAL MEETING • MAY 11 - 14, 2022

3

SOCIETY FOR AMBULATORY ANESTHESIA
2022 SAMBA ANNUAL MEETING - MAY 11 - 14, 2022

Outpatient • Office Based • Non-Operating Room

www.SAMBAhq.org



- 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 Information Centre National Statistics Hospital Episode Statistics United Patient Care, England - 2008-09 (2010)

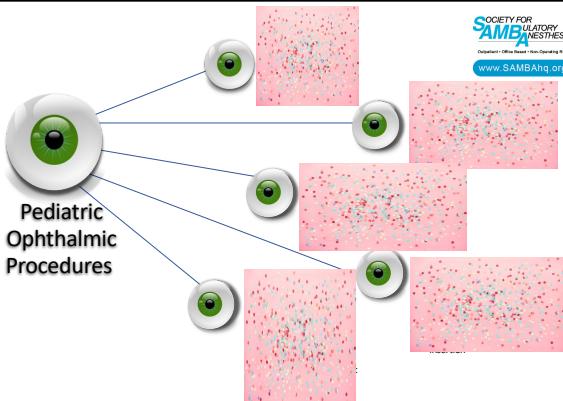
CDC
Monitoring the Nation's Health

4

SOCIETY FOR AMBULATORY ANESTHESIA
2022 SAMBA ANNUAL MEETING - MAY 11 - 14, 2022

Outpatient • Office Based • Non-Operating Room

www.SAMBAhq.org



Pediatric Ophthalmic Procedures

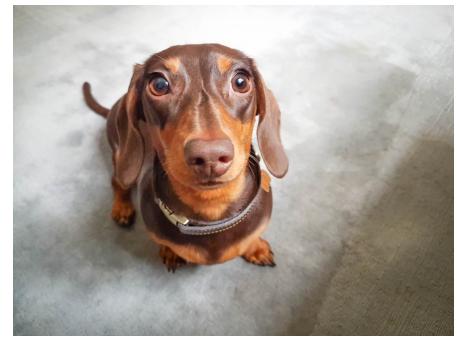
Ocular Anesthesia

5

SOCIETY FOR AMBULATORY ANESTHESIA
2022 SAMBA ANNUAL MEETING - MAY 11 - 14, 2022

Outpatient • Office Based • Non-Operating Room

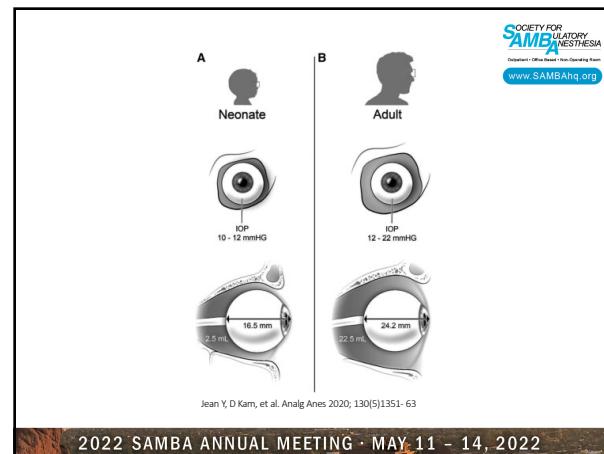
www.SAMBAhq.org



6



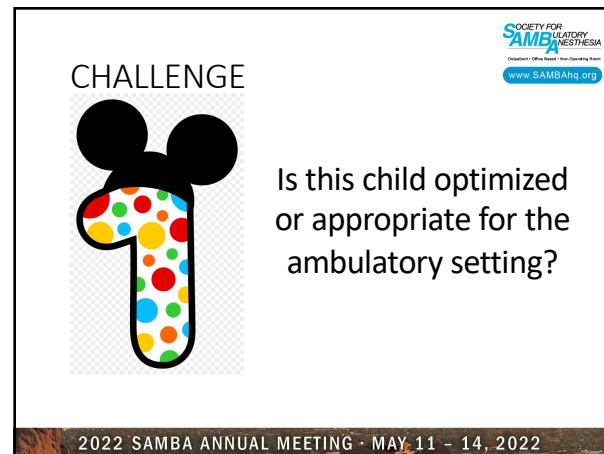
7



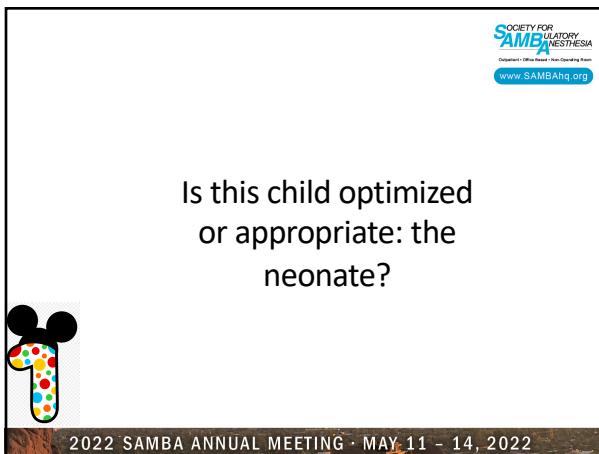
8



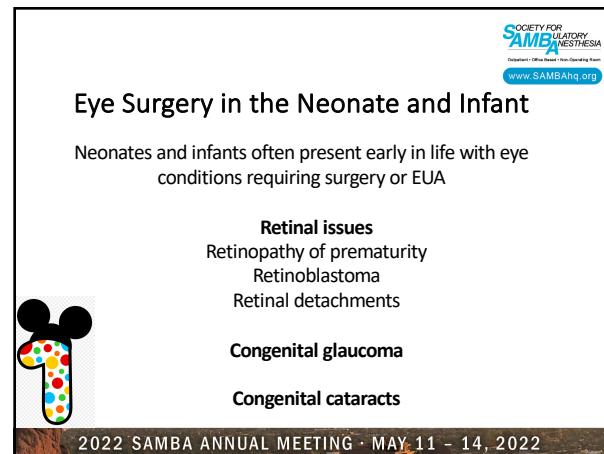
9



10



11



12

**SOCIETY FOR
ANESTHESIA
Otolaryngic
www.SAMBAhq.org**

Eye Surgery in the Neonate and Infant

Post gestational age?
Weight?
Comorbidities?
Staffing resources/Need for post op monitoring?
Postop disposition?
Facility resources?



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

13

**SOCIETY FOR
ANESTHESIA
Otolaryngic
www.SAMBAhq.org**

Is this child optimized or appropriate: the syndromic child?



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

14

**SOCIETY FOR
ANESTHESIA
Otolaryngic
www.SAMBAhq.org**

Craniofacial syndromes (Goldenhar, Treacher-Collins)

Noonan Syndrome

Mucopolysaccharidosis

Trisomy 21

Neurobehavioral Implications: developmental delay, autism or deafness co-diagnoses

Marfan Syndrome

Mucopolysaccharidosis (Hunter's/Hurlers)



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

15

**SOCIETY FOR
ANESTHESIA
Otolaryngic
www.SAMBAhq.org**

- Syndromic neonates, infants, pediatric patient are commonly scheduled for eye procedures
 - What is the syndrome

Is a Pediatric Anesthesiologist warranted?

- Need for post op monitoring?
- Postop disposition?
- Facility resources? (trach'd, need for post op ventilation?)



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

16

**SOCIETY FOR
ANESTHESIA
Otolaryngic
www.SAMBAhq.org**




2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

17

**SOCIETY FOR
ANESTHESIA
Otolaryngic
www.SAMBAhq.org**

Conditions	Possible associated conditions	Suggested consultations
Neuro		
Chronic progressive external ophtalmoplegia	Heart block	Cardiac clearance
Cerebral palsy	Malignant hypertension	Consult anesthesiologist
Cerebral disorders	Difficult airway	Consult anesthesiologist*
Pares anomyia		Cardiac clearance
Limb deformities		
Hypoxicemic crises		
Homocystinuria	Cardiac arrhythmia	Cardiac clearance
Metabolic syndromes		
Lowe syndrome	Increased risk of neuroembolic events	Cardiac clearance
Alport syndrome		Neurologic clearance
Glycogen storage disease		Cardiac clearance
Pediatric glucose		
Rabinowitz-Taylor syndrome	Heart block	Cardiac clearance
Sturge-Weber syndrome	Preoperative seizures	Neurology clearance
	Difficult airway if vascular malformations present in mediastinum	Consult anesthesiologist*
Pediatric reflux		
CHARGE [®] association	Cardiac defect	Consult anesthesiologist*
Newborns (< 56 weeks postmenstrual age)	Tracheoesophageal fistula	Cardiac clearance
	Postoperative stridor	Postoperative monitoring in pediatric intensive care unit if significant event or early in the day is possible
High risk meds		
Chronic systemic steroids	Addisonian crisis	Pediatric endocrinology clearance and recommendation regarding perioperative steroid dose

Cavuoto, et al, 2014

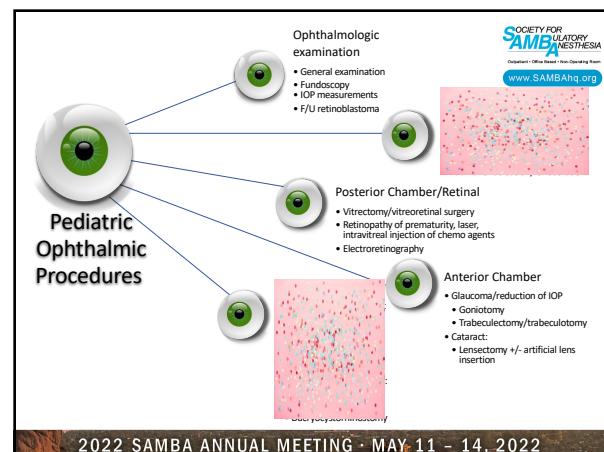


2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

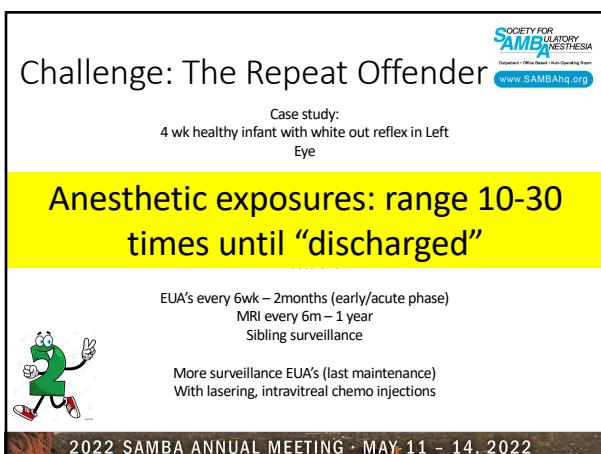
18



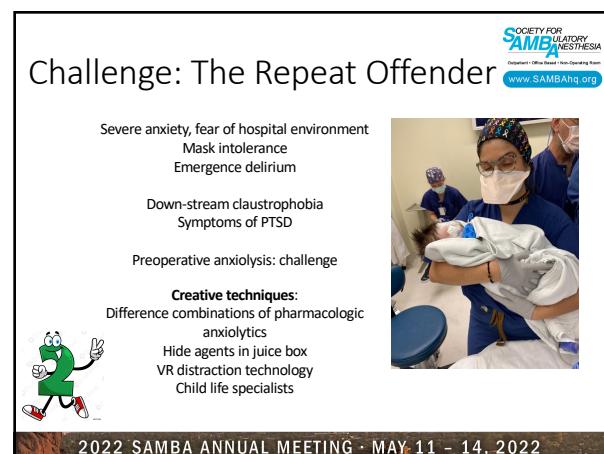
19



20



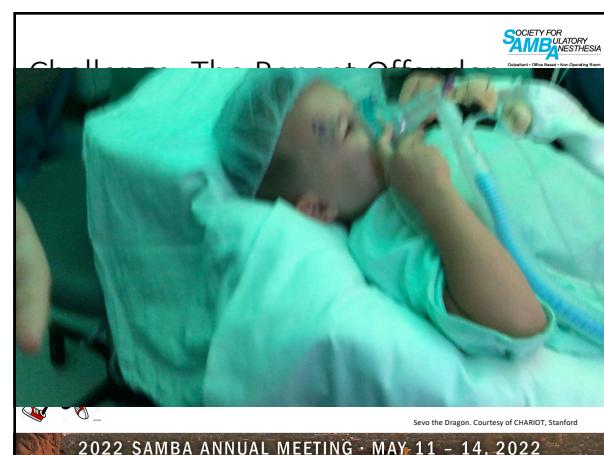
21



22



23



24

Challenge: The Repeat Offender



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

25

Challenge

Choice of Anesthesia
Technique

2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

26

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



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

27

CHALLENGE



Traumatic Eye Injury

2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

28

The Open Globe

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

Story:
Playing with a tazer 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?



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

29



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

30

Challenge



Environment



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

31

Perioperative environment



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

32

Perioperative environment
Electroretinography

Retinograms require complete blackout
Preop blindfolding
Intraoperative darkness



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

33

Citations



- Health and Social Care Information Centre National Statistics Hospital Episode Statistics, Admitted Patient Care, England – 2013-14 (2015)
- DeFrances, CJ, Cullen, KA, and Koza, LJ. *Vital Health Stat.* 2007;13: 1-209
- Lam B, C Mendoza-Santisteban, A Gonzalez, et al. Electrotretinogram recording for infants and children under anesthesia to achieve optimal dark adaptation and international standards. *J. Vis. Exp.* (1), e61734 (2020)
- Jean Y, D Kam, S Gayer, et al. Regional Anesthesia for Pediatric Ophthalmic Surgery: A Review of the Literature. *Analg. Anes* 2020; 130(5):1351–63
- Augusteyn RC, Nankivell D, Mohamed A, Maceo B, Pierre F, Parel JM. Human ocular biometry. *Exp Eye Res.* 2012;102:70–75.
- Dawson DG, Watsky MA, Geroski DH, Edelhauser HF. Cornea and sclera. In: Tasman W, Jaeger EA, eds. *Duane's Foundations of Clinical Ophthalmology*. Philadelphia, PA: Lippincott Williams & Wilkins, 2006.
- Park DJ, Kresh J. Topographic anatomy of the eye: an overview. In: Tasman W, Jaeger EA, eds. *Duane's Foundations of Clinical Ophthalmology*. Philadelphia, PA: Lippincott Williams & Wilkins, 2006.
- Dahmani S, H Delivit and J Hilly. Emergency Delirium in Children: an Update. *Current Opinion in Anesthesiology*, 2014, 27(3):309-15.
- Bands RJ and J Lerman. Preoperative Anxiety Management, Emergency Delirium, and Postoperative Behavior.
- Carvuto K, Rodriguez, L, et al. General Anesthesia in the Pediatric Population. *Current Opinion – Ophthalmology* 2014, 25: 411-16.

2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

36

Postoperative Environment



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

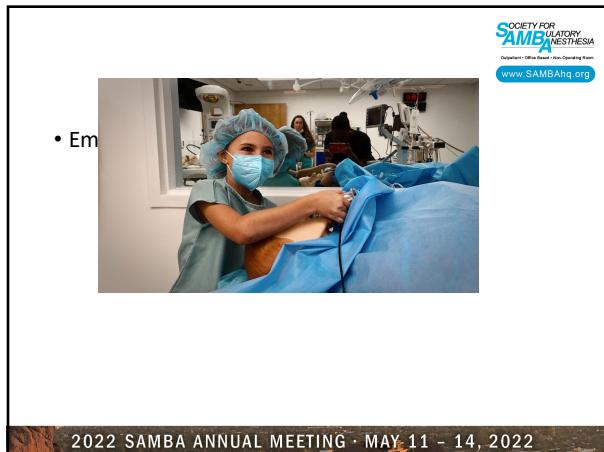
Gas bubble
Kids lie flat x 2 hrs
Where?

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



2022 SAMBA ANNUAL MEETING · MAY 11 – 14, 2022

35



37