

**2022 SAMBA ANNUAL MEETING**  
MAY 11 – 14, 2022



## Preoperative HCG Testing: PRO

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1

**Disclosures**



2

**What I Am Advocating\***

**Mandatory, universal** preoperative hCG testing for patients who are capable of being pregnant

3

**Overview**

- Background and rationale for universal hCG testing
- Financial considerations
- Policy considerations

4

**Pregnancy and Anesthesia**

The Good, the Bad, and the Ugly

5

**The Good (Experience)**

- No modern anesthetics are known teratogens at clinically-relevant doses
- Many non-elective surgeries occur during pregnancy without obvious ill effect



6

## The Bad (Uncertainty)

• 2012 ASA Practice Advisory concluded **insufficient evidence to conclude if anesthesia causes harm in pregnancy**

• Do anesthetics have **effects on neurodevelopment** and if so, when?

• Surgery **DOES pose some risk to pregnancy** and may expose the fetus to teratogens

Apfelbaum JL, et al. Anesthesiology 2012; 116(3):522-38.  
ACOG Committee Opinion No. 775 Obstet Gynecol. 2019 Apr;133(4):e285-e286.

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## The Ugly (Legal Stuff)

• ASA Closed Claims database reports 7 claims for miscarriage after surgery

- Not tested or tested but not checked

Apfelbaum JL, et al. Anesthesiology 2012; 116(3):522-38.

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7

8

## How Good Are These Tests?

- Timing is key
- All rely on  $\beta$ -hCG
- Levels rise after implantation (6-12 days)
- Urine  $\beta$ -hCG at 14 days: Sens./Spec. > 99%
- Quantitative serum tests accurate at 6-10 days

O'Connor RE, et al. Amer J Emerg Med 1993 Jul;11(4):434-6.  
Lararenko GC, et al. CJEM. 2001 Oct;3(4):292-5.

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9

## Is It Worth the Cost?

- Orthopedic ASC, elective cases
- 2588 tests over 12 months
- 5 positive tests (0.19%)

  - 1 ectopic pregnancy

- **Cost per pregnancy: \$3273**

Kahn RL, et al. Anesth Analg. 2008 Apr;106(4):1127-31.

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10

## Is It Worth the Cost?

- Elective gyn procedures at 5 Canadian hospitals
- 5477 tests over 13 months
- 33 positive tests (0.6%)
- **Cost per pregnancy: \$3568 CAD (~\$2800 USD)**

Douglas WR, et al. Clin Obstet Gynecol Reprod Med 2015; 1: doi: 10.15761/COGRM.1000112

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11

## Is It Worth the Cost?

- Orthopedic ASC, elective cases
- 4723 DOS urine hCG tests over 23 months
- 7 positive tests (0.15%)
- **Cost per pregnancy: \$1005**

Hutzler L, et al. Bull Hosp Jt Dis (2013). 2014;72(2):164-6.

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12

Is it Worth the Cost?

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- What is the frequency of unrecognized pregnancy?
  - Literature: 0.2% – 2.2%
- What is the cost of detecting one pregnancy?
  - \$1000-\$3000
- **What is the dollar value of unrecognized pregnancy?**

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13

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14

Universal is Simpler

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Ethical Issues—Policy Creation

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- **Nonmaleficence vs. Autonomy**
  - It's surgery, not a buffet
- Disclosure of test results
  - Who discloses a positive test to the patient?
  - Who is allowed to know?
- Special groups
  - Minors – legal requirements
  - Institutionalized / nonverbal patients

Clinical Ethics in Anesthesiology: A Case-based Textbook. Ch 14, pp. 79-83.

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16

Take-Home Points

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- Surgery poses an unknown risk to a developing fetus
- Cost/benefit favors benefit of testing
- Universal testing is a more reliable process
- Make sure to check the test results and have a policy to deal with positive tests

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17