



# Anticoagulation for Mechanical Heart Valves Peripartum: Balancing Thrombotic and Bleeding Risks

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# Outline

- Two women with mechanical heart valve and peripartum bleeding
- Review guidelines on management of anticoagulation peripartum
- Review the bleeding risks for these women
- What can we do to minimize these risks?

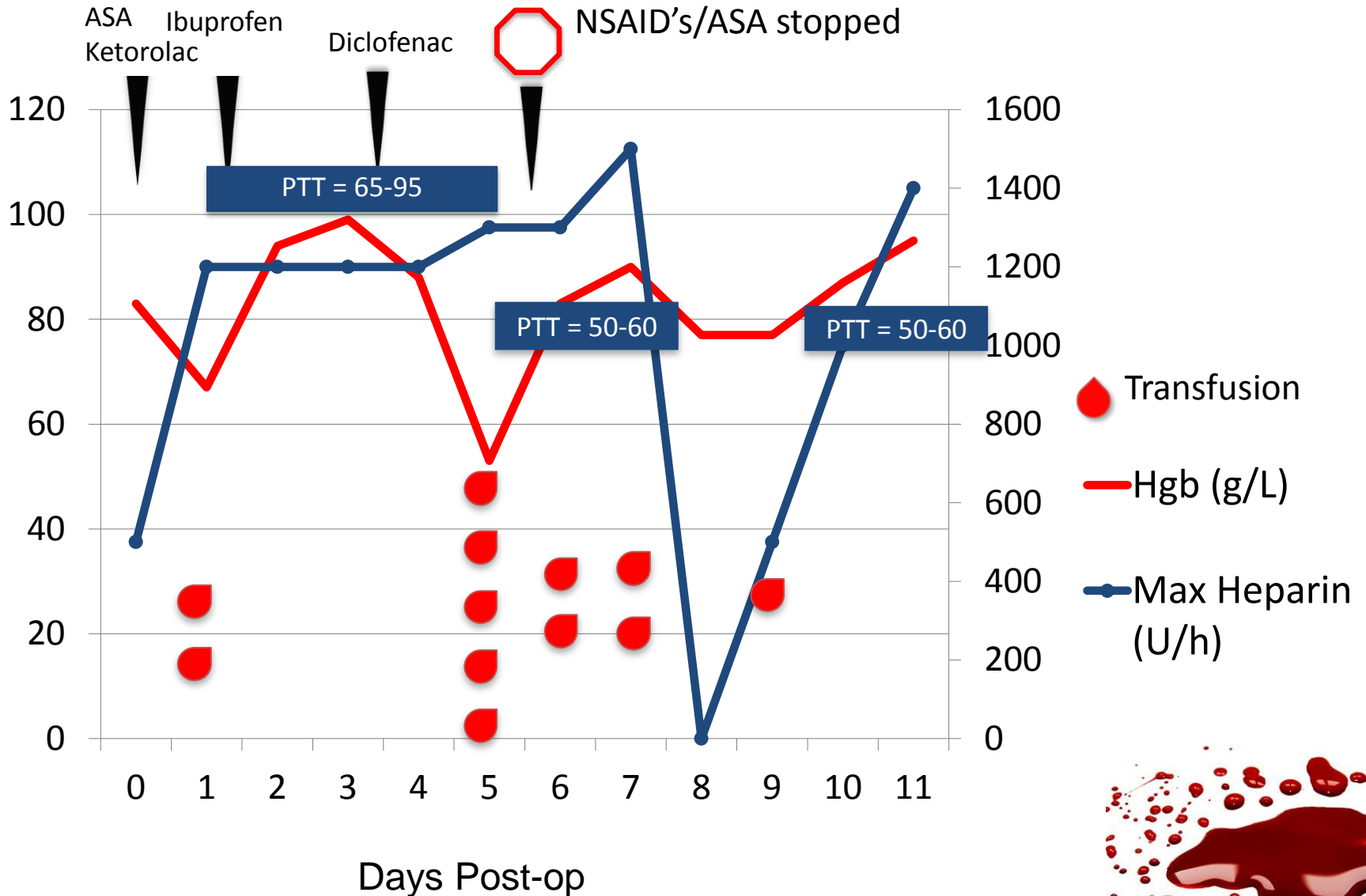


# Case 1

- 24 yo G2P0 with unplanned pregnancy at 10 weeks on warfarin
  - St Jude mitral and aortic valves for endocarditis
  - Atrial fibrillation
  - Functional aortic stenosis (gradient 85/55mm Hg on TEE) due to patient prosthesis mismatch
- Warfarin → LMWH at 34 wks
- Threatened preterm labor at 38wks
- Multidisciplinary meeting
  - Primary C-section



# Case 1 - Postpartum

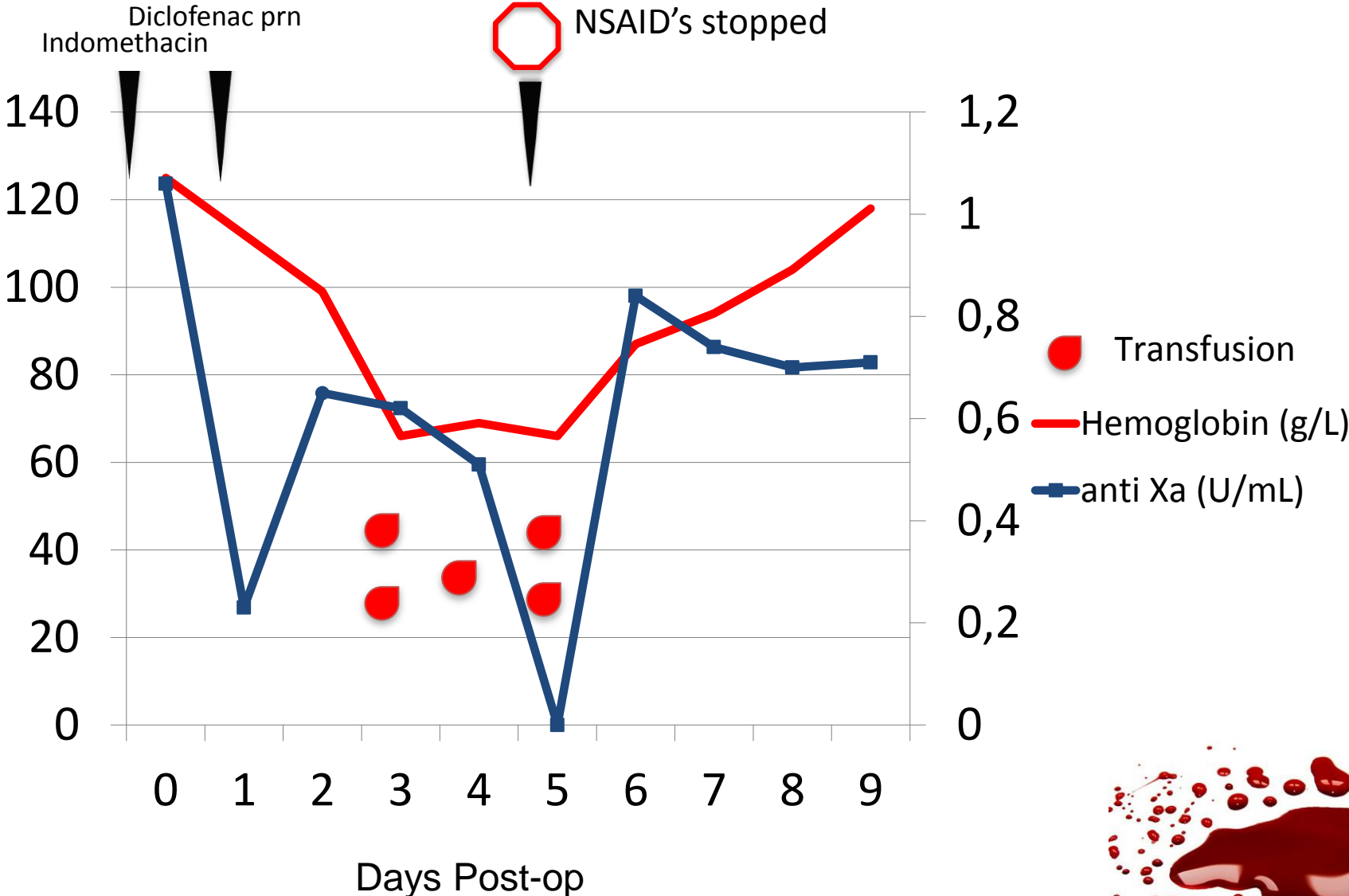


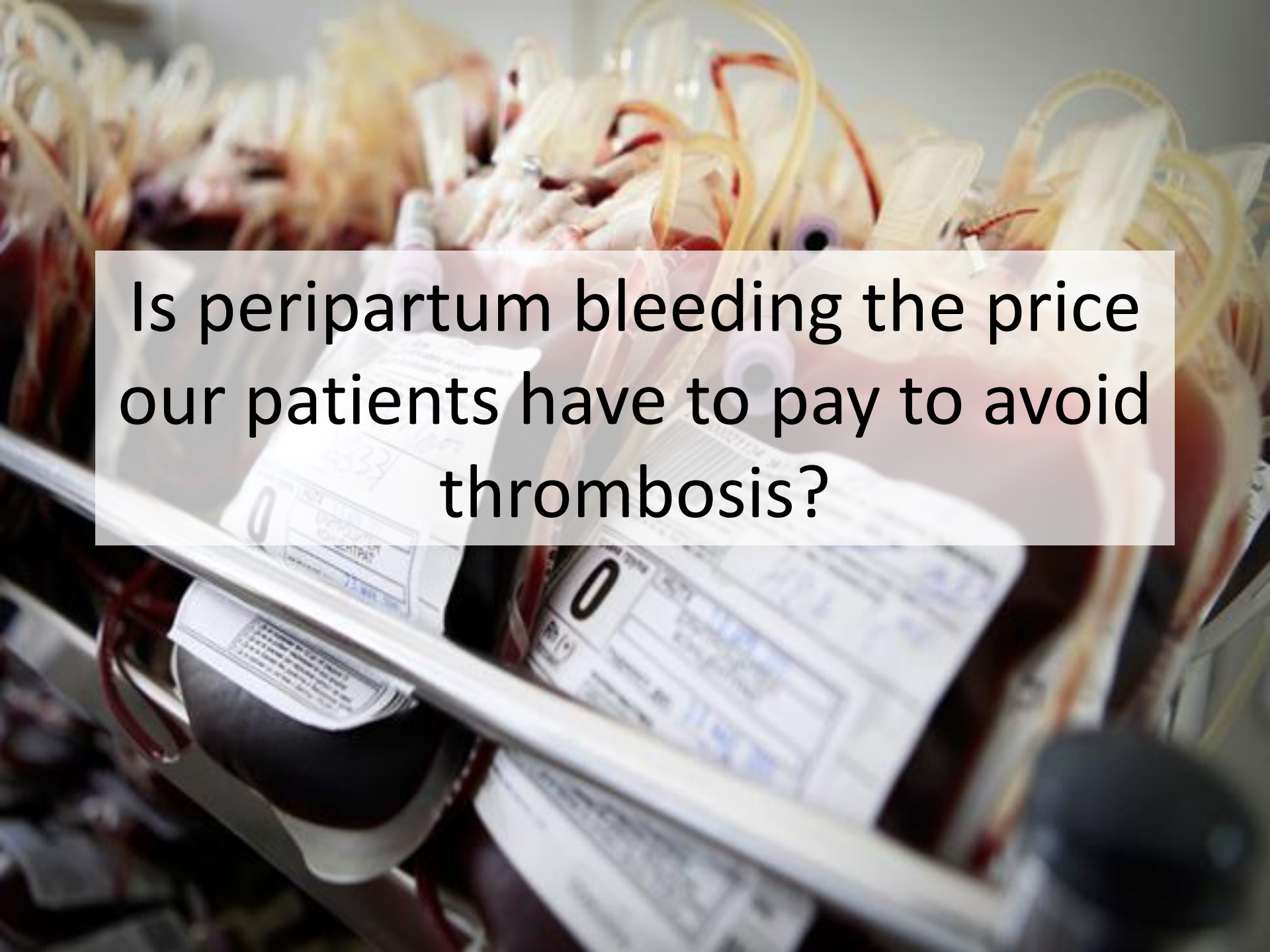
# Case 2

- 37 yo G3P1A1 at 4 wks gestation on warfarin
  - St Jude mechanical mitral valve for rheumatic heart disease
  - 1<sup>st</sup> pregnancy in Nepal – uncomplicated CD
- Enoxaparin → Warfarin → Enoxaparin
- ASA 81mg daily throughout
- IVUFH prior to planned repeat C-section
  - Held for 6 hours prior to OR



# Case 2 - Postpartum





Is peripartum bleeding the price  
our patients have to pay to avoid  
thrombosis?

# Peripartum Management

## What do the Guidelines Say?

- ESC 2011 Cardiovascular Disease in Pregnancy Guidelines
  - Planned vaginal delivery preferred
  - Switch to LMWH or UFH at 36wk
  - IVUFH 36h prior to IOL or CS and stop 4-6h before delivery
  - **Restart IVUFH 4-6h after delivery if no bleeding complications**
- AHA/ACC 2014 Valvular Heart Disease Guidelines
  - Before planned VD discontinue warfarin and use dose adjusted IVUFH, which is stopped just before delivery. Elective CS also an option
- ACCP 2012 Anticoagulation Guidelines
  - No recommendations made





# Peripartum Management

## What do the experts say?

- McLintock et al. Thromb Res. 2011
  - Switch from warfarin to heparin 2-3 weeks prior to delivery
  - Switch to IVUFH 24-36h prior to IOL or CS and stop 4h PTD or RA (target aPTT)
  - Postpartum – start IVUFH 500 U/h for 6h, increase to 1000 U/h, and then as per aPTT (4-6h post VD, 6-12h post CS)
- Uptodate (North et al)
  - Very similar protocol
  - DC ASA 1 wk prior



# What is the risk of peripartum bleeding?

- **McLintock et al. BJOG. 2009 (47 pregnancies/31 women)**
  - Outcomes: postpartum bleeding (31.9%)
    - 12.8% primary (within 24hrs)
    - 19.1% secondary (after 24 hrs)
  - Outcomes: 2 postpartum thrombosis (4.2%)
    - Both with subtherapeutic anti-Xa in T3
- **Van Hagen et al. Circulation 2015. ROPAC (n=212)**
  - Bleeding complication 23.1% (most at time of delivery) compared to 4.9% (women without prosthetic valve)
    - PPH 10.4% compared to 1.2% (normal population)
  - No apparent thrombosis related to interruption of anticoagulation peripartum



# What is the role of ASA in bleeding?

- Van Hagen et al. Circulation 2015. ROPAC
  - ASA added in 13 patients
    - Bleeding events in 61.5% of these women (8/13) versus 20.6% in those not on ASA ( $p=0.002$ )
    - No MVT in these patients ( $p=1.00$ )



# Do bleeding rates differ by country?

Van Hagen et al. Circulation 2015. ROPAC

|                    | Developed countries<br>N=56 | Emerging countries<br>N=156 | P Value |
|--------------------|-----------------------------|-----------------------------|---------|
| Thrombotic events  | 10.7%                       | 4.5%                        | 0.110   |
| Hemorrhagic events | 41.1%                       | 16.7%                       | <0.001  |
| Cesarean section   | 64.7%                       | 40.6%                       | 0.003   |

# Can we do better?

- Try harder for a vaginal delivery
- Consider the role of ASA and consider stopping peripartum
- Don't use NSAIDs
- ???Consider slightly longer delay in restarting anticoagulation
- Use anti-Xa levels when using IVUFH (Dr. Sia)
- Research this area more so we have more guidance!



# Questions?

