## Thrombocytopenia in Pregnancy and Neuraxial Anesthesia: Delphi Survey Participants

\*indicates taskforce members

Committee Co-chairs: Lisa Leffert and Melissa Bauer

## American College of Obstetricians and Gynecologists (ACOG)

\*Mark Turrentine, MD, Baylor College of Medicine

## American Society of Hematology (ASH)

- \*Theresa Gernsheimer, MD, University of Washington School of Medicine
- \*Anita Rajasekhar, MD MS, University of Florida
- \*Juliana Perez Botero, MD, Medical College of Wisconsin

## American Society of Regional Anesthesia and Pain Medicine (ASRA)

\*Christopher Wu, MD, Hospital for Special Surgery, Weill Cornell Medicine

## Society of Maternal Fetal Medicine (SMFM)

\*Andra James, MD, Duke University

## Society for Obstetric Anesthesia and Perinatology (SOAP)

- \*Lisa Leffert, MD, Massachusetts General Hospital
- \*Melissa Bauer, DO, University of Michigan (current: Duke University)
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Brian Bateman, MD MSc, Brigham and Women's Hospital

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Ashraf Habib, MD, Duke University

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Manuel Vallejo, MD, West Virginia University School of Medicine

Edward Yaghmour, MD, Vanderbilt University

# Others:

- \*Timothy Houle, PhD, Massachusetts General Hospital (Biostatistician)
- \*Mark MacEachern, MLIS, University of Michigan (Library Scientist)
- \*Jason Cooper, MD PhD, University of Washington School of Medicine (Hematology)

### SOAP Thrombocytopenia in Pregnancy and Neuraxial Anesthesia - Modified Delphi Process

SOAP Thrombocytopenia Taskforce Launch

October 2017 - April 2018

- SOAP Board Mandate for Thrombocytopenia Consensus Statement
- Defined mission and goals
- Interdisciplinary Taskforce representatives assigned by respective boards: ACOG, ASRA, ASH, SMFM

Organizational Teleconference

April 2018

- Determined scope of work
- Developed consensus statement work process
- Created project timeline and work groups
- Generated subgroup assignments

Systematic Review and other relevant Literature Search

June 2018 - July 2019

 Conducted systematic review for spinal epidural hematoma associated with neuraxial anesthesia and thrombocytopenia in pregnancy (Bauer et al., JCA, 2019)

Work Group Report Out
July 2018

- Summary tables of existing anesthesia guidelines
- Brief descriptions of current obstetric guidelines
- Brief descriptions of current hematologic guidelines and summary of available testing

Symposium #1: Review of Current Professional Society Guidelines

October 2018

- Review of guidelines for neuraxial anesthesia in pregnant patients with thrombocytopenia
- Review of relevant laboratory testing
- Organization of etiologies of thrombocytopenia
- · High level summary of systematic review of the literature

Delphi Survey - General May - July 2019

- In collaboration with our statistician, created delphi survey to ascertain platelet cut-offs for neuraxial procedures and risk/benefit decisions in a variety of clinical settings
- Administered survey to expanded panel of anesthesia, obstetric and hematologic experts

Delphi Survey - Hematology August 2019

- In collaboration with our statistician, created a separate delphi survey focusing on key hematologic factors, such as bleeding history questions, laboratory testing, and platelet function in the setting of various etiologies of thrombocytopenia
- Administered survey to the subset of our taskforce with hematology expertise

Symposium #2: Review of Survey
Results

October 2019

- Presentation and discussion of the results from the two surveys
- Division of taskforce into two workgroups for generating decision aids/recommendations:
- Autoimmune and Gestational Thrombocytopenia
- Thrombocytopenia related to Hypertensive Disorders of Pregnancy

Teleconference and Follow-up e-mails: Reconciliation of Dissenting Opinions

November 2019

- Presentation of workgroup results
- Discussion of dissenting opinions

Draft consensus statement after review of evidence

- December 2019 April 2020
- Core members of primary author group developed consensus statement and draft decision aids
- E-mail communications to find compromise in any areas of dissenting opinion

Internal Review May 2020

- Consensus document created
- Full document reviewed by all taskforce members
- Incorporated feedback into the document

SOAP Board Approval and Open Comment Period

June 2020

- Endorsement by the SOAP Board of Directors
- 30-day open comment period on SOAP website
- Sent to partner professional societies for endorsement

Incorporation of feedback and Submission for publication July 2020

- Endorsement by ASRA, ACOG, SMFM (ASH: pending)
- Submission to Anesthesia & Analgesia

Demographic Information

# Thrombocytopenia Delphi - Round 1

Thank you for participating in this survey assessing your management of obstetric patients with thrombocytopenia.

We greatly appreciate your participation and input. We ask that you answer every question to the best of your ability with the information provided knowing there may be important details lacking (note: for those of you who are not anesthesiologists, we ask that you respond based on the actions you would recommend).

 $\bigcirc \ \mathsf{Anesthesiologist}$ 

O Physician (not Anesthesiologist)

Question 1		
What is your platelet count cutoff for placing a labor epidural in a parturient with a BMI = 30 kg/m2, no history or physical signs of bleeding (thrombocytopenia type not specified)?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if the patient is at high risk for cesarean delivery?	○ Yes ○ No	
(e.g., a patient with a category II tracing, IUGR, or unstable fetal lie)		
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a spinal anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a combined spinal-epidural anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would any of your answers change if the patient had an unfavorable airway?  If yes, please answer only the following questions where an unfavorable airway would lead you to choose a different platelet count.	○ Yes ○ No	

If an unfavorable airway causes your platelet cutoff to change from above for placing a labor epidural in a parturient with a BMI = 30 kg/m2, no history or physical signs of bleeding (thrombocytopenia type not specified), what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
If other, please indicate platelet cutoff	
If a bad airway causes your platelet cutoff to change from above when the patient is at high risk for cesarean delivery, what would be your platelet cutoff?  (e.g., a patient with a category II tracing, IUGR, or unstable fetal lie)	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If a bad airway causes your platelet cutoff to change from above when you are planning a spinal anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If a bad airway causes your platelet cutoff to change from above when if you are planning a combined spinal-epidural anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	

Question 2 - Immune Thrombocytopenic Purpura	a (ITP)	
What would your platelet cutoff be for placing a labor epidural if the diagnosis was Immune Thrombocytopenic Purpura (ITP)?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if this patient is at high risk for cesarean delivery? (e.g., a patient with a category II tracing, IUGR, or unstable fetal lie)	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a spinal anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a combined spinal-epidural anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would any of your answers change if the patient had an unfavorable airway? If yes, please answer only the following questions where an unfavorable airway would lead you to choose a different platelet count.	○ Yes ○ No	

If your platelet cutoff changes for placing a labor epidural when the diagnosis was Immune Thrombocytopenic Purpura (ITP), what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
If other, please indicate platelet cutoff	
If your platelet cutoff changes when this patient is at high risk for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
If other, please indicate platelet cutoff	
If your platelet cutoff changes when you are planning a spinal anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc Other$
If other, please indicate platelet cutoff	
If your platelet cutoff changes when you are planning a combined spinal-epidural anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
If other, please indicate platelet cutoff	

Question 3 - Gestational Thrombocytopenia		
What would your platelet cutoff be for placing a labor epidural if the diagnosis was gestational thrombocytopenia?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if the patient is at high risk for cesarean delivery? (e.g., a patient with a category II tracing, IUGR, or unstable fetal lie)	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a spinal anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a combined spinal-epidural anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would any of your answers change if the patient had an unfavorable airway?  If yes, please answer only the following questions where an unfavorable airway would lead you to choose a different platelet count.	○ Yes ○ No	

If your platelet cutoff changes for placing a labor epidural if the diagnosis was gestational thrombocytopenia, what would be your platelet cutoff?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If your platelet cutoff changes when this patient is at high risk for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If your platelet cutoff changes when you are planning a spinal anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If your platelet cutoff changes for you are planning a combined spinal-epidural anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
If other, please indicate platelet cutoff	

Question 4 - Preeclampsia		
What would your platelet cutoff be for placing a labor epidural if the thrombocytopenia was related to preeclampsia?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if the patient is at high risk for cesarean delivery? (e.g., a patient with a category II tracing, IUGR, or unstable fetal lie)	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a spinal anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if you are planning a combined spinal-epidural anesthetic for cesarean delivery?	○ Yes ○ No	
If so, what would your platelet cutoff be?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
Would your platelet cutoff change if the patient has preeclampsia with severe features, with rapidly dropping platelet count requiring urgent cesarean delivery?	○ Yes ○ No	

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If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
Would any of your answers change if the patient had an unfavorable airway? If yes, please answer only the following questions where an unfavorable airway would lead you to choose a different platelet count.	○ Yes ○ No
If your platelet cutoff changes when placing a labor epidural if the thrombocytopenia was related to preeclampsia, what would be your platelet cutoff?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If your platelet cutoff changes when the patient is at high risk for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If your platelet cutoff changes when you are planning a spinal anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If your platelet cutoff changes when you are planning a combined spinal-epidural anesthetic for cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
If your platelet cutoff changes when the patient has preeclampsia with severe features, with rapidly dropping platelet count requiring urgent cesarean delivery, what would be your platelet cutoff?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$

f other, please indicate platelet cutoff		



Question 5 - Scenario	
A new patient arrives on the labor floor, a 35 year old G1P0 presents with spontaneous onset of labor without prior labs and complete blood count at admission shows thrombocytopenia. She has no history of bleeding or current physical signs. She is not aware that she has thrombocytopenia and has never had a hematologic consult.	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
What would your platelet cutoff be for placing a labor epidural?	
If other, please indicate platelet cutoff	
Would you require a PT/aPTT prior to making your anesthetic decision?	○ Yes ○ No
Would your platelet cutoff change for placing a labor epidural if she had a history of prior surgery without significant bleeding?	○ Yes ○ No
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	
Would your platelet cutoff change if the patient is at high risk for cesarean delivery? (e.g., a patient with a category II tracing, IUGR, or unstable fetal lie)	○ Yes ○ No
If so, what would your platelet cutoff be?	$\bigcirc$ ≥ 100,000 x 106/L $\bigcirc$ ≥ 80,000 x 106/L $\bigcirc$ ≥ 70,000 x 106/L $\bigcirc$ ≥ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
Would your platelet cutoff change if you are planning a spinal anesthetic for a planned cesarean delivery (for this patient)?	○ Yes ○ No
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \text{Other}$
If other, please indicate platelet cutoff	

Would your platelet cutoff change if you are planning a combined spinal epidural anesthetic as opposed to a spinal anesthetic (for this patient)?	○ Yes ○ No
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc$ Other
If other, please indicate platelet cutoff	
Would your platelet cutoff change if the patient has morbid obesity, an unfavorable airway, and requires urgent cesarean delivery?	○ Yes ○ No
If so, what would your platelet cutoff be?	$\bigcirc \ge 100,000 \times 106/L$ $\bigcirc \ge 80,000 \times 106/L$ $\bigcirc \ge 70,000 \times 106/L$ $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \bigcirc $
If other, please indicate platelet cutoff	

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Question 6	
Is there a clinical situation (not already mentioned) that would cause you to choose a lower platelet count range?	
If so, please list all circumstances.	

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Question 7 - Coagulation Studies	
The following questions ask if you use coagulation studies (PT/INR/PTT) at the time of procedure to assess safety for regional anesthesia in thrombocytopenic patients. Do you routinely use coagulation studies for these patients?	
If yes, please check off the diagnoses in which you order coagulation studies (please check off any or all selections)	<ul><li>☐ Preeclampsia</li><li>☐ Gestational</li><li>☐ Thrombocytopenia</li><li>☐ ITP</li><li>☐ Unknown diagnosis</li></ul>
If yes for preeclampsia, what is your platelet cutoff for ordering coagulation studies?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If yes for gestational thrombocytopenia, what is your platelet cutoff for ordering coagulation studies?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If yes for ITP, what is your platelet cutoff for ordering coagulation studies?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If yes for unknown diagnosis, what is your platelet cutoff for ordering coagulation studies?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	

Question 8		
The following question(s) ask if you use thromboelastography (TEG) or rotational thromboelastometry (ROTEM) to assess safety for regional anesthesia in thrombocytopenic patients. Do you routinely use TEG and ROTEM for these patients?	○ Yes ○ No	
If yes, please check off diagnoses in which you order TEG or ROTEM (please check off any or all selections)	<ul><li>☐ Preeclampsia</li><li>☐ Gestational</li><li>☐ ITP</li><li>☐ Unknown diagnosis</li></ul>	
If yes for preeclampsia, what would be your platelet cutoff for performing TEG or ROTEM?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
If yes for gestational thrombocytopenia, what would be your platelet cutoff for performing TEG or ROTEM?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
If yes for ITP, what would be your platelet cutoff for performing TEG or ROTEM?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other	
If other, please indicate platelet cutoff		
If yes for unknown diagnosis, what would be your platelet cutoff for performing TEG or ROTEM?	<pre>     &lt; 100,000 x 106/L         ≤ 80,000 x 106/L         ≤ 70,000 x 106/L         ≤ 50,000 x 106/L         Other </pre>	
If other, please indicate platelet cutoff		

Question 9	
Do you consider giving a platelet transfusion prior to neuraxial technique in thrombocytopenic patients $(< 100,000 \times 106/L)$ ?	○ Yes ○ No
If yes, please check off diagnoses in which you would consider transfusing platelets prior to a neuraxial technique (check any or all selections)	<ul><li>☐ Preeclampsia</li><li>☐ Gestational</li><li>☐ Thrombocytopenia</li><li>☐ Unknown diagnosis</li></ul>
If yes for preeclampsia, what would your platelet cutoff be to consider a platelet transfusion prior to a neuraxial technique?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If yes for gestational thrombocytopenia, what would your platelet cutoff be to consider a platelet transfusion prior to a neuraxial technique?	$\bigcirc$ < 100,000 x 106/L $\bigcirc$ ≤ 80,000 x 106/L $\bigcirc$ ≤ 70,000 x 106/L $\bigcirc$ ≤ 50,000 x 106/L $\bigcirc$ Other
If other, please indicate platelet cutoff	
If yes for ITP, what would your platelet cutoff be to consider a platelet transfusion prior to a neuraxial technique?	<pre>     &lt; 100,000 x 106/L</pre>
If other, please indicate platelet cutoff	
If yes for unknown diagnosis, what would your platelet cutoff be to consider a platelet transfusion prior to a neuraxial technique?	<pre>   &lt; 100,000 x 106/L</pre>
If other, please indicate platelet cutoff	

# **Hematology Delphi**

Please complete the survey below.	
Thank you!	
Question 1	
What are the important major diagnostic categories of thrombocytopenia that are most relevant to discuss in the thrombocytopenia in pregnancy/neuraxial anesthesia recommendations (please check all that apply):	☐ Gestational Thrombocytopenia ☐ ITP ☐ Congenital Thrombocytopenia ☐ Thombocytopenia associated with systemic disorders - pregnancy related ☐ Thromboytopenia associated with systemic disorders - non-pregnancy related ☐ Pseudothrombocytopenia ☐ Newly recognized thrombocytopenia on admission for delivery ☐ Other
Please select all pregnancy related thrombocytopenia associated systemic disorders that apply	<ul><li>☐ Preeclampsia with severe features</li><li>☐ HELLP syndrome</li><li>☐ Acute fatty liver of pregnancy</li></ul>
Please select all NON-pregnancy related thrombocytopenia associated systemic disorders that apply	☐ Viral induced (HIV, hepatitis, CAPS) ☐ Drug induced ☐ Autoimmune disease-related (eg. SLE) ☐ Thrombotic Microangiopathy (TTP, aHUS) ☐ Bone marrow disorder ☐ Coagulopathy (DIC) ☐ VWD 2
If other, please specify	

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Question 2	
If feasible, please indicate which of these disorders typically have normal platelet function in the absence of additional comorbid disease (please check all that apply):	<ul> <li>☐ Gestational Thrombocytopenia</li> <li>☐ ITP</li> <li>☐ Congenital Thrombocytopenia</li> <li>☐ Thombocytopenia associated with systemic disorde</li> <li>- pregnancy related</li> <li>☐ Thromboytopenia associated with systemic disorder</li> <li>- non-pregnancy related</li> <li>☐ Pseudothrombocytopenia</li> <li>☐ Newly recognized thrombocytopenia on admission for delivery</li> <li>☐ Other</li> </ul>
Please select all pregnancy related thrombocytopenia associated systemic disorders that apply	<ul><li>□ Preeclampsia with severe features</li><li>□ HELLP syndrome</li><li>□ Acute fatty liver of pregnancy</li></ul>
Please select all NON-pregnancy related thrombocytopenia associated systemic disorders that apply	<ul> <li>Viral induced (HIV, hepatitis, CAPS)</li> <li>□ Drug induced</li> <li>□ Autoimmune disease-related (eg. SLE)</li> <li>□ Thrombotic Microangiopathy (TTP, aHUS)</li> <li>□ Bone marrow disorder</li> <li>□ Coagulopathy (DIC)</li> <li>□ VWD 2</li> </ul>
If other, please specify	Coagulopathy (DIC)



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#### **Question 3** For the scenarios below, please assume that the patient is without additional comorbidities, that she has a BMI = 30 and a favorable airway. The context is a cesarean delivery (non-urgent) unless otherwise stated. ○ Yes For a term pregnant patient is it reasonable to have $\bigcirc$ No a lower platelet cutoff for a spinal anesthetic (single injection after the spinal space is found, O Unable to answer the question (please specify 25 gauge, atraumatic needle, no catheter thread) reason) than for an epidural anesthetic (17 gauge needle, small flexible catheter left in the vascular epidural space) if she has gestational thrombocytopenia? $\bigcirc \ge 80,000 \times 106/L$ If yes, what is the lowest platelet cutoff you could imagine being acceptable for the spinal anesthesia? $\bigcirc \ge 70,000 \times 106/L$ ○ ≥ 60,000 x 106/L $\bigcirc \ge 50,000 \times 106/L$ $\bigcirc \ge 40,000 \times 106/L$ Please specify reason For a term pregnant patient is it reasonable to have Yes a lower platelet cutoff for a spinal anesthetic $\bigcirc$ No (single injection after the spinal space is found, Unable to answer the question (please specify 25 gauge, atraumatic needle, no catheter thread) reason) than for an epidural anesthetic (17 gauge needle, small flexible catheter left in the vascular epidural space) if she has been diagnosed with ITP? $\bigcirc \ge 80,000 \times 106/L$ If yes, what is the lowest platelet cutoff you could imagine being acceptable for the spinal anesthesia? $\bigcirc \ge 70,000 \times 106/L$ ○ ≥ 50,000 x 106/L $\bigcirc \ge 40,000 \times 106/L$ Please specify reason Yes For a term pregnant patient is it reasonable to have a lower platelet cutoff for a spinal anesthetic (single injection after the spinal space is found, O Unable to answer the question (please specify 25 guage, atraumatic needle, no catheter thread) reason) than for an epidural anesthetic (17 gauge needle. small flexible catheter left in the vascular epidural space) if she has been diagnosed with severe features? ○ ≥ 80,000 x 106/L If yes, what is the lowest platelet cutoff you could ○ ≥ 70,000 x 106/L imagine being acceptable for the spinal anesthesia? ○ ≥ 60,000 x 106/L ○ ≥ 50,000 x 106/L ○ ≥ 40,000 x 106/L Please specify reason



Question 4

A G1P0 woman at 36 weeks with preeclampsia	with severe features (headache, proteinuria) is	
being sent from the inpatient antepartum serv	ice to the labor floor for delivery. Her fetus is	
breech so she will require a cesarean delivery. Her platelet count yesterday was 99,000 x $10^6$ . Platelet count at 28 weeks gestation was $160,000 \times 10^6$ . Repeat labs are being sent		
possible, although it is not an emergency.		
A repeat complete blood count and liver function	○ Yes ○ No	

A repeat complete blood count and liver function tests (transaminases, LDH) were ordered. Are there any additional laboratory tests that you feels are specifically required before proceeding with a spinal or epidural anesthetic?	○ Yes ○ No
If yes, please specify	



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A G1P0 woman at 36 weeks was just admitted this morning with mild range hypertension and epigastric pain. Her new laboratory tests reveal liver function tests (transaminases) in the 150's, mildly elevated LDH, normal glucose, and a platelet count of  $80,000 \times 10^6$ . Her platelet count yesterday evening was  $120,000 \times 10^6$ . She is diagnosed with HELLP syndrome and scheduled for immediate induction of labor. The anesthesia team would like to do a labor epidural procedure now, before her platelet count declines further. Their plan would be to wait to remove the epidural catheter until after she has delivered, and her platelet count rebounds.

Are there any additional laboratory tests that you think are essential in this setting prior to proceeding with this procedure?	○ Yes ○ No	
If yes, please specify		
In your expert opinion, is it reasonable to proceed with the labor epidural procedure as proposed?	○ Yes ○ No	
If no, please explain		



Question 6		
For the patient that is newly found to have thrombocytopenia (platelet count $80,000 \times 10^6$ ) on admission for delivery (no previous laboratory values available):		
What are the most important questions to ask the patient? (please check all that apply)	<ul> <li>□ Bleeding challenges and outcomes</li> <li>□ Spontaneous bleeding (eg mucocutaneous bleeding)</li> <li>□ History of heavy menses</li> <li>□ Other</li> </ul>	
Please check all bleeding challenges and outcomes that apply	<ul> <li>□ Prior surgery (including cesarean)</li> <li>□ Prior vaginal delivery</li> <li>□ Prior spinal or epidural anesthetic</li> <li>□ Prior wisdom tooth extraction</li> <li>□ Prior transfusions for bleeding events</li> </ul>	
If other, please specify		
What additional laboratory tests would you order for which the results would typically be available in 1 hour?		



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Question 7	
Please add any additional thoughts and comments here:	



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