Society for Obstetric Anesthesia and Perinatology

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Peripartum Pain Management Toolkit for Cesarean Delivery

Season 2 of the hit podcast The Retrievals addresses the experience of Cesarean delivery in modern medicine.

"Cutting someone's body open and operating when they can feel it: That is not supposed to happen. That's something from history or from war.

Significant pain during a C-section can't be something that 100,000 women experience each year. Can it?"

Pain during Cesarean has been described with a frequency of up to 6% (spinal anesthesia), 18% (CSE), 24% (labor to cesarean epidural top-up), with a conversion rate to general anesthesia (GA) of 4.9%. [1] This is certainly a problem the obstetric anesthesia provider will encounter. This toolkit highlights best practices in obstetric anesthesia that support a safe and positive experience for patients undergoing Cesarean delivery. An accompanying patient-facing guide can be found at: https://thepainlesspush.com. This toolkit is divided into the following sections:

- Setting the Stage: Preoperative Conversations about Cesarean Delivery
- Bridging the Block: Optimizing Epidural Conversion for Cesarean Delivery
- Intraoperative Cesarean Pain: Practical Strategies for Obstetric Anesthesia Providers
- After the OR: An Anesthesiology Toolkit for Cesarean Follow-Up

We are particularly grateful for members of the SOAP Education Committee and other leaders for their contributions to this work.

Setting the Stage: Preoperative Conversations about Cesarean Delivery

Facilitating regular conversations about expectations for Cesarean may improve outcomes in these cases. [2] As the practice of obstetric anesthesia has changed, there may be additional opportunities to provide education about these topics including through enhanced recovery after Cesarean (ERAC), patient information sites (https://thepainlesspush.com), and other media.

How might you respond if a patient asks, how common is pain during Cesarean?

- Of course, this depends by how we define "pain during cesarean delivery" (for example, the need for any discomfort-relieving medication intraoperatively vs. patient report of severe pain and/or conversion to general anesthesia.) Retrospective studies place the risk between 2-36%.[3]
- Consider language that addresses the patient's concern and highlights the support they will receive during the delivery, for example:
    - "That's a great question. Most Cesarean deliveries are performed under spinal or epidural anesthesia, and the **goal is for you to stay comfortable during your surgery. You will likely feel sensations that some people describe as stretching, pushing, pulling and pressure, and if those sensations become uncomfortable, please let us know so we can immediately address it. We take your pain during surgery very seriously and have ways to adjust the anesthesia quickly** or convert to general anesthesia if needed. Our team is focused on keeping you safe and as comfortable as possible throughout your surgery.

What if a patient asks, "Why do we recommend spinal or epidural anesthesia instead of being put to sleep from the start?"

- Depending on the context of the conversation, answers may include: 1) improved maternal safety/decreased risk[4] 2) improved neonatal outcomes/decreased fetal exposure 3) experience of the delivery 4) postoperative pain control[5] 5) allows a birthing partner to be present in most situations
- This question may require follow-up before being answered to assess the patient's understanding of neuraxial and general anesthesia. It is helpful to highlight the safety profile of neuraxial without emphasizing the risks of general anesthesia. An example script:
    - "We typically recommend spinal or epidural anesthesia for Cesarean delivery because it is physically **safer** for both the mother and the baby in most cases. One important reason is that it helps avoid **airway risks** associated with general anesthesia, especially in pregnancy when the airway can be more challenging. It also reduces the risk of **aspiration**, which is when stomach contents can accidentally enter the lungs during surgery.
- Neuraxial anesthesia delivers optimal postoperative pain management following a cesarean delivery. Medications used in general anesthesia may also increase the **risk of bleeding** during Cesarean by decreasing the uterus' ability to contract after the baby is born.
- From a baby's perspective, less medication crosses the placenta with a neuraxial technique, so there's also **less drug exposure for the newborn**. Neuraxial anesthesia also allows the mother to be awake and alert, making it possible for immediate skin-to-skin contact and early bonding, and supports a more inclusive experience, since a support person can usually be present in the operating room.
    - *While spinal or epidural anesthesia is considered physically safer, we always have general anesthesia as a safe alternative option.*

How do you know if I am numb enough to start having surgery?

- Consider describing your process for testing and how the obstetrician will also "test" prior to starting. Reinforce the ability to adapt the anesthetic to any situation that arises and the presence of the anesthesia team throughout the entire operation.

Universal recommendations for language during patient education:

Describe common sensations during Cesarean delivery (setting expectations to help manage perception without causing a nocebo effect)[6]

- Pushing, pressure, stretching, tugging. We are focused on ensuring **these sensations are tolerable (versus intolerable)**
- **Team approach: we work closely with our obstetric colleagues the entire procedure to keep you safe and comfortable**
- Avoid saying "you won't feel anything". It is common to have sensations and helpful to define a shared language about these feelings in advance.[7]
- Nausea and vomiting can occur for many reasons, and we have many options to treat both

Describe common sensations during neuraxial placement. Emphasize the expectation of open communication (e.g. "It really helps me to know if you feel these things so we can take the best care of you")

- Injection of local anesthetic (numbing medicine) in skin
- Tingle down hip or leg
- Pressure or ache in the middle of your spine or off to one side
- Pain – which we can treat

We want you to speak up if you are uncomfortable! We have medications available to treat pain and anxiety[8]

- Some medications for anxiety can affect your level of consciousness and impact your memory.
- We will work with you to determine when you think it is best to have this type of medication.

Our job as anesthesia providers is to keep you safe and to prevent/treat pain. These two goals are reflected in every decision we make. We care deeply about this.

This can be further explained for patients who may need additional information:

- "Unfortunately, we cannot guarantee that that you will not feel uncomfortable ever during the procedure, but we can reassure you if you are uncomfortable, we will address it right away."
- "It helps us take better care of you when you communicate what you are feeling or what concerns you have – thank you for partnering with us on this!"

Why do some patients experience intra-cesarean pain?

Situational:

- Emergency procedures require balancing the safety of the patient with the optimal anesthetic.
- Events can make the surgery last longer than anesthesia
    - Excessive blood loss, difficult delivery related to fetal position or size, prior abdominal surgery, repeat cesarean, adherent placenta, tubal ligation, and others
    - "If we anticipate a longer procedure, sometimes we modify our anesthetic by adding an epidural catheter to a spinal anesthetic as a backup. But we cannot always anticipate longer procedures"
- Surgeon exteriorizes the uterus
- Chorioamnionitis
- Technically difficult spinal injection
- Most labor epidurals work well for cesarean delivery; some labor epidurals work well for labor pain but are inadequate for surgery.
- For patients at increased risk of cesarean delivery, consider replacing the epidural early if the following is present: (also see section on Bridging the Block: Optimizing Epidural Conversion for Cesarean Delivery)
    - Multiple clinician doses required for labor pain
    - Patchy/unequal block
    - Lack of lower extremity motor block after initial surgical dosing (10 mL)
- Sensory block for surgery can initially appear to be effective but be inadequate.
- The patient is the best judge:
    - **Failing to listen to the patient who says the block is not working is a major contributor to intra-cesarean pain and birth trauma.**
    - **Validating and supporting patients with pain is protective against the negative effects of the pain experience.**

Patient specific (consider referral for OB Anesthesia if #1-5 present):

1. Individual differences in spine anatomy (scoliosis)
2. Prior spine surgery
3. History of chronic pain or opioid use disorder
4. History of pain during previous cesarean delivery or prior birth trauma
5. BMI high
6. Fear of pain / anxiety

What if pain occurs? Your anesthesia provider will take care of you and work with you to balance keeping you safe and comfortable.

- Shared decision-making as appropriate between patient and anesthesia provider
  - o A change in plan can be implemented as needed.

- Appropriate treatment options could include one or a combination of the below
  - o Replacing a spinal or epidural
  - o Intravenous medications
  - o Redosing epidural medications
  - o Intra-abdominal medications
  - o Nitrous oxide inhaled gas
  - o Conversion to general anesthesia

- Which treatment options are most appropriate depends on specific factors
  - o At what point during the surgery is the pain occurring?
    - Do we need more time for the block to set up or is the spinal/epidural failing?
    - Will the baby tolerate waiting longer before delivery?
  - o Where is the pain?
    - Peritoneal (shoulder or chest) vs surgical pain?
  - o Is it tolerable or not
    - **Don't spend time debating whether it is "pain vs pressure"**
  - o Treat rapidly/offer general anesthesia early
    - If general anesthesia, we will wake you up right after surgery is completed so you can see your baby and breastfeed/do skin -to-skin
    - It is not unsafe to convert togeneral anesthesia. Sometimes this is the best option.

Bridging the Block: Optimizing Epidural Conversion for Cesarean Delivery

1. Initial Assessment

A systematic and rapid assessment is critical before converting a labor epidural for cesarean delivery. The decision-making process must prioritize maternal and fetal safety, beginning with an evaluation of clinical urgency. For a STAT or time-critical cesarean delivery, such as in cases of placental abruption or persistent fetal bradycardia, proceeding directly to general anesthesia (GA) is often the safest and most expeditious option. In urgent but stable scenarios, conversion of the existing epidural is a viable and often preferred approach.[9]

The functionality of the indwelling epidural catheter must be rigorously assessed.
Key risk factors for conversion failure include[10]:

- a greater number of unscheduled labor epidural top-ups
- increased parturient-reported pain before cesarean delivery
- management by a non-obstetric anesthesiologist
- urgency of the cesarean delivery.

The primary goal is to achieve a bilateral sensory block to at least the T4 dermatomal level. Key evaluation points include the existing sensory level, the presence and degree of motor blockade, and the symmetry of the block. Asymmetry may indicate suboptimal catheter placement and failure of conversion. Concurrently, pertinent patient factors, including hemodynamic stability, platelet count, and the fetal heart rate tracing, must be reviewed. ***If an existing catheter is replaced, thoughtful dosing of subsequent neuraxial medications must be done to prevent a high neuraxial level.***

Throughout this process, clear communication with the patient is paramount to provide reassurance and manage expectations. Explaining the desired effects of block augmentation to the patient may help empower the patient's understanding and anticipation of a new dense sensory and motor block.

2. Preparation for Conversion

Successful conversion extends beyond pharmacologic intervention to encompass thorough preparation. Effective interdisciplinary communication among the anesthesiology team, obstetricians, and operating room staff is essential for coordinated care.

Essential equipment must be readily available. It is reasonable to administer a co-load of crystalloid fluid judiciously to prevent hypotension along with a vasopressor infusion, such as phenylephrine. Crucially, the anesthesiologist must have a pre-formulated and accessible plan for airway management/general anesthesia (Plan B) should the conversion fail or complications arise.

3. Technique for Block Augmentation

The objective of augmentation is to intensify the existing epidural block to achieve a bilateral sensory level to T4. Several pharmacologic agents can be used. A common and effective combination is 2% lidocaine with epinephrine (1:200,000) and sodium bicarbonate, which offers a rapid onset. Other options include 3% chloroprocaine and the addition of a lipid-soluble opioid, such as 100 mcg of fentanyl, to the local anesthetic solution.

Dosing should be performed incrementally. Administering 5 mL aliquots q3 to q5 minutes allows for continuous reassessment and titration to effect. Aspiration before each injection is mandatory to rule out intravascular or intrathecal catheter migration. Following administration of the total dose, placing the patient in a slight Trendelenburg position can facilitate cephalad spread of the local anesthetic.

4. Intraoperative Management

Proactive management of potential side effects is key to a smooth intraoperative course. Hypotension should be anticipated and prevented with LUD positioning and fluid co-loading, and treated promptly with vasopressors. Pain should be assessed immediately and the need for additional neuraxial or intravenous treatment should be determined. If the patient experiences anxiety despite adequate anesthesia, anxiolytics such as midazolam may be administered. Because both systemic opioids and anxiolytics may enter fetal circulation, consideration and communication about these medications with the obstetrics and pediatric teams are critical but should not prevent treatment of pain or anxiety in the patient.

For postoperative analgesia, consider giving preservative free morphine (2-3 mg) via epidural catheter after the delivery of the baby. The epidural catheter may be continued with a low-concentration infusion of local anesthetic and/or opioid, or it may be removed, depending on institutional protocols. In either case, consider implementing a multimodal analgesic regimen.

5. Criteria for Conversion Failure and Escalation to General Anesthesia

The anesthesiologist must recognize the signs of a failed conversion and be prepared to escalate to general anesthesia without hesitation. Triggers for conversion to GA include:

- Failure to achieve a surgical level of anesthesia after attempted conversion.
- A persistent unilateral or patchy block.
- Rapid hemodynamic decompensation of the mother or fetus.
- Patient distress or refusal to continue with the regional technique.

Despite an evidence-based preference for neuraxial anesthesia for Cesarean delivery, general anesthesia is safely administered when indicated, and the patient (and family) should be reassured.

Intraoperative Cesarean Pain: Practical Strategies for Obstetric Anesthesia Providers

Intraoperative Priorities for the Anesthesiologist

These priorities are intended to serve as guiding principles to help in even the most complex case.

- Maximally empower the patient to report pain at any time.
- If a patient reports pain during Cesarean, believe and validate the concern.
- Communicate clearly with the surgical and nursing teams so they can provide input and assistance.
- Enable shared decision-making, and provide the patient clear recommendations, guidance, and reassurance.

Key Clinical Actions for Managing Intraoperative Pain[11]

- Check and document the sensory level of a neuraxial anesthetic prior to incision.
    - o T4 to light touch or gentle pinprick
    - o Inability to perform a straight leg raise
- Establish clear communication with the patient including the expectation to share any concerns.
- If the block is questionable, review the options with the patient and OB team (prior to incision, where possible).
    - o Pain with testing after initial neuraxial anesthesia, before incision:
        - Notify the OB team, review a backup plan for general anesthesia (GA) with the patient
        - Identify the current acuity of the situation
        - If an epidural is present, is there an opportunity for additional epidural medication (2% lidocaine with 1:200,000 epinephrine and bicarbonate or 3% chloroprocaine)

Urgent Epidural Top-Up?
- 3% Chloroprocaine or 2% Lidocaine
- Fentanyl 100 mcg

        - Reassess the block. Is there time to replace the neuraxial anesthetic or does the situation require progression to GA?
            - Repeat epidural [if patient consents, stable acuity]
            - Induce GA [if patient prefers, worsening acuity]

    - o Pain after incision:
        - If present, bolus epidural with a rapid-onset local anesthetic + lipophilic opioid
        - If no epidural, administer IV analgesics and/or anesthetic adjuvants

Pain during Surgery?
- Urgent epidural top-up (above)
- IV: fentanyl, ketamine
- Inhalational: N2O
- Consider midazolam for anxiety, if present

        - Request pause of surgical stimulation including avoidance of uterine exteriorization if possible
        - Reassess the patient promptly after interventions. If not improving, prepare for GA.
- Reassure patient,
- Transfer support person out of room
- Close communication with OB team
- Induce GA [consider video laryngoscopy, rapid sequence induction, TIVA]

After the OR: An Anesthesiology Toolkit for Cesarean Follow-Up

1. Timing of Follow-up

- Initial **in-person check-in within 24-48 hours** of delivery by the primary anesthesia provider or a designee
- If in-person follow-up is not feasible or if additional discussion is warranted, consider a **telephone** or **virtual** follow-up within 1–2 weeks postpartum.
- Obstetric team should be informed, particularly if the patient's concerns may impact postpartum care

2. Key Recommendations for Patient Interaction

- Approach every interaction with **empathy, humility, and active listening**.
- The goal is to understand, support, and clarify, not to justify.
- Providing support, empowering patients with a sense of control, and fostering inclusive communication can help prevent childbirth-related PTSD and improve overall outcomes.[12]
- Recognize that anesthesia-related experiences can profoundly affect the overall **birth experience, emotional well-being**, and **trust in healthcare**.
- Assess whether psychiatry follow up is warranted and liaise with primary team

3. Structured Approach to the Follow-up Conversation

A. Acknowledge the Experience

- Use **open-ended, nonjudgmental language** to invite the patient's perspective:

"I understand parts of your birth may have been difficult. Would you feel comfortable sharing how things were for you?"

- **Validate emotions** without minimizing or overexplaining:

"It's completely understandable to feel upset or unsettled after an experience like that."

B. Provide Clear Information and Clarification

- **Use simple, supportive language**, free from technical jargon.
- Explain the **medical indications** for specific actions (e.g., need for general anesthesia, supplemental medications, conversion from regional to general).
- **Be honest and transparent when answering questions — it is appropriate to apologize** for unmet expectations or aspects of care that could have been better:

"We always aim to provide comfort and safety to our patients, and I am sorry that was not your experience."

C. Screen for Emotional Distress and Offer Support

- **Look for ongoing distress, trauma symptoms, or anxiety**. Pay attention to verbal and non-verbal cues such as reporting nightmares or flashbacks, heightened reactivity.
- **Consider gentle, direct questions**:

"Since your delivery, have you been having upsetting memories, trouble sleeping, or felt especially anxious or overwhelmed?"

- **Provide information about available hospital-based resources**
    - o Social Work
    - o Perinatal Mental Health Services
    - o Postpartum Support Groups
    - o Opportunity for further follow-up with the Anesthesia team
- **Recognize that processing the experience may take time** — offering support for follow-up after the initial postpartum period is encouraged.

D. Documentation and Communication

- Document the encounter thoroughly, including:
    - o The patient's concerns and emotional state
    - o The information and explanations provided
    - o Referrals or resources offered
    - o Any agreed-upon follow-up plans
- Consider informing safety or quality improvement teams including:
    - o Risk Management or Patient Safety team
    - o Obstetric care team, especially if birth planning may be impacted
    - o Departmental Quality and Safety committee,

4. Additional Considerations

Educational Debrief:

- If trainees were involved, debrief the case individually to support learning and enhance future care.
- Ideally, multidisciplinary teams should debrief the case including obstetric providers, nurses and the anesthesia team.
- **Future Birth Planning**: Encourage the patient to meet with an anesthesiology consultant in future pregnancies to review the prior experience and create an individualized plan.
- **Wellness for Providers**: Acknowledge that these cases can also impact anesthesia team members; peer support and debriefing are recommended.
- **Present at local Morbidity & Mortality or Quality Improvement meeting**: Individual and group learning from difficult cases (and mistakes made) is an important part of clinical practice, which should be strongly encouraged by leadership at all institutions.

[1] "Statement on Pain During Cesarean Delivery"; Kinsella, "A Prospective Audit of Regional Anaesthesia Failure in 5080 Caesarean Sections."

[2] "Statement on Pain During Cesarean Delivery"

[3] Gonzalez-Fiol, Fardelmann, and Landau, "Shedding More Light on the Management of Intraoperative Pain during Cesarean Delivery."

[4] "Practice Guidelines for Obstetric Anesthesia."

[5] Tafish, El Aish, and Madi, "General versus Spinal Anaesthesia for Caesarean Section."

[6] Varelmann et al., "Nocebo-Induced Hyperalgesia during Local Anesthetic Injection."

[7] Keltz et al., "Intraoperative Pain during Caesarean Delivery."

[8] "Statement on Pain During Cesarean Delivery."

[9] "Statement on Pain During Cesarean Delivery."

[10] Halpern et al., "Conversion of Epidural Labour Analgesia to Anaesthesia for Caesarean Section"; Lee et al., "Failure of Augmentation of Labor Epidural Analgesia for Intrapartum Cesarean Delivery."

[11] Gonzalez-Fiol, Fardelmann, and Landau, "Shedding More Light on the Management of Intraoperative Pain during Cesarean Delivery"; "Statement on Pain During Cesarean Delivery."

[12] "Statement on Providing Psychological Support for Obstetric Patients."