

# It's a 'Kit'astrophe!

## Tips on Epidural Kit Shortage

Society for Obstetric Anesthesia and Perinatology (SOAP)

Patient Safety Subcommittee

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Several centers across the country are reporting shortages of prepackaged epidural (and combined spinal-epidural) kits. At the time of this communication, we are unaware of centers with a complete lack of supply; however, several have reported multiple substitution kits and frequent vendor changes in order to keep a steady supply. In preparation for a potential disruption of epidural kit supply, the Patient Safety Subcommittee of the Society for Obstetric Anesthesia and Perinatology (SOAP) is sharing the following considerations and alternatives outlined below. Please note that these approaches are not to be interpreted as guidelines or standards of care.

### General Considerations and Preparation:

1. Labor floor directors should maintain a direct line of communication with the appropriate hospital personnel in charge of the acquisition and distribution of epidural supplies
2. Consider acquiring substitute brand prepackaged epidural kits, or acquiring each component of an epidural kit separately
3. Frequent assessment of laboring patients with epidural analgesia should be considered to identify early analgesia failures and issues
4. An audit should be performed to characterize:
  - a. Overall kit utilization per day/week
  - b. Incidence of high-risk deliveries per day/week
  - c. Track complications and analgesia failures related to substitute anesthesia equipment and supplies
5. Should rationing of kits present as a strategy for conservation of kit supply, anesthesia care teams should utilize resources such as the hospital's ethics committee and risk management team
  - a. Reserve supply for highest risk patients (including, but not limited to):
    - i. Class III and greater obesity
    - ii. Obstructive Sleep Apnea
    - iii. Unfavorable airway exam
    - iv. Multiple gestation anticipating breech extraction
6. Quality measures and oversight should be taken to ensure that the wastage of kits is minimized. Anesthesiology care team members should familiarize themselves with all substitute kits prior to use on patients.
7. A communication to the obstetric and nursing teams should be prepared explaining the limitations of the current situation

## Active Pursuit of Alternatives for Complete Lack of Epidural Kits

Substitute strategies for epidural analgesia:

1. Neuraxial: Spinal analgesia (can be performed multiple times during labor, if needed)
  - a. Long-acting local anesthetic e.g., Bupivacaine 0.5% (2.5mg), consider adding opioid
  - b. Intrathecal Opioid additives
    - i. Fentanyl (15-20mcg)
    - ii. Morphine (50-150mcg)
    - iii. Hydromorphone (up to 100mcg)
2. Inhalational: Nitrous Oxide
3. Opioid analgesia:
  - a. Intravenous (IV) Fentanyl PCA (50-100mcg loading dose, 10-25mcg PCA dose every 5-10min, no background infusion)
  - b. IV Remifentanyl PCA (10-50mcg bolus, lockout 1-5 min, no background infusion)
  - c. IV or Intramuscular (IM) Butorphanol (1-2mg, may repeat in 4 hours)
  - d. IV nalbuphine (2.5-10mg every 2-4 hours)
  - e. Meperidine (25-50mg IV, 50-100mg IM every 4 hours). *Long, historical use for labor analgesia, although use is discouraged due to potential concerns regarding long-acting metabolite, normeperidine in neonate.*
  - f. Oral Hydrocodone/acetaminophen (1-2 tablets every 4-6 hours)
4. Other analgesics:
  - a. IV or oral Acetaminophen
  - b. IV Ketamine (0.1-0.2 mg/kg boluses titrated to effect)

*Please note that Nitrous Oxide and intravenous and oral analgesics are all inferior to neuraxial analgesia but may be considered in a multimodal approach*

5. Regional analgesic blocks
  - a. Paracervical Block
    - i. Effective for the first stage of labor (T10-L1)
    - ii. Newer superficial injection techniques have better side effect and complication profiles
  - b. Pudendal Nerve Block
    - i. Effective for second stage of labor as well as vaginal repairs (S2-S4)
  - c. Lumbar Sympathetic Block
    - i. Effective for the first stage of labor, but technically difficult
6. Get Creative!
  - a. Use of peripheral nerve block kits:
    - i. Many nerve block kits contain Tuohy needles and polyamide closed tip catheters
    - ii. Although these kits contain components almost identical to the epidural kits, this would be an off-label use

### Cesarean Delivery and Postoperative Analgesia Strategies

1. To Extend Duration of spinal anesthesia:
  - a. Consider addition of epinephrine 200mcg to spinal medication to avoid use of a combined spinal-epidural technique as a conservation measure
  - b. Addition of clonidine (75-150mcg) to spinal medication also prolongs the duration of anesthesia, but may cause exacerbate hypotension
2. Postoperative Analgesia:

In addition to normal multimodal analgesia regimens, consider Transversus Abdominis Plane (TAP) , Quadratus Lumborum (QL), or Erector Spinae (ESP) blocks or catheters in patients that would normally receive epidural catheters for postop pain control

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