



## **SOAP Statement on Oxytocin Shortage**

Society for Obstetric Anesthesia and Perinatology (SOAP)

Education Committee

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In August of this year, Fresenius Kabi, one of the major manufacturers of oxytocin announced disruption in supply due to production delays. This resulted in increased demand for product from Par Pharmaceutical, the other major manufacturer and depletion of inventory. Products affected include: 10 USP units/mL 1mL, 10mL, 30mL, and 50mL vials. Expected release dates of backordered vials are expected by mid-November 2022 for 1mL vials, mid-December 2022 for 10mL vials, and additional vials by January 2023.<sup>1</sup>

**Oxytocin infusion bags are not affected at this time and SOAP considers oxytocin infusion for postpartum hemorrhage prophylaxis to be the preferred route of administration and strongly recommends utilizing an infusion protocol for the active management of the third stage of labor.**

The oxytocin shortage is more regionally dependent than other medication shortages, with many hospitals not experiencing supply interruptions at this time; however, if your hospital is experiencing an oxytocin shortage, below are suggestions to mitigate the effects. This statement is consistent and in agreement with the ACOG statement of oxytocin shortage<sup>2</sup> with the additional consideration for alternative oxytocin dosing strategies (e.g., “rule of threes”) and the novel consideration of intravenous calcium chloride.

*Multidisciplinary communication: it is crucial to have ongoing discussions on oxytocin availability and optimal, equitable use with all stakeholders including obstetric and obstetric anesthesiology healthcare professionals, nursing leadership and pharmacy. Practices should consider de-escalation of the mitigation strategies once the oxytocin shortage is alleviated or no longer affecting their site.*

- Conservation strategies:

#### Obstetric:

- Obstetric care professionals can adjust several management strategies for conservation: Examples include induction of labor prioritization with ongoing review, active management of labor, individual hemorrhage risk stratification, cervical ripening agents for induction of labor, and avoidance of oxytocin for first trimester D&C. Refer to the ACOG statement of oxytocin shortage<sup>2</sup>:  
<https://www.acog.org/clinical-information/physician-faqs/oxytocin-shortage>.

#### OB anesthesiology and nursing:

- Retain the labor oxytocin infusion bag for all patients going for cesarean delivery for postpartum hemorrhage prophylaxis. Verify that the infusion is appropriately clamped and disconnected prior to transfer to avoid inadvertent oxytocin bolus.
- Consider multidisciplinary huddle to discuss plan of action for postpartum patient before starting second bag of oxytocin

#### Pharmacy:

- If larger volume vials are available (e.g., 30mL and 50mL vials), pharmacy can consider preparing smaller, 1mL (10 USP unit) doses for conservation
- Dosing Strategies and Alternatives:
  - Given availability of oxytocin infusion bags, SOAP recommends oxytocin infusion for the active management of the third stage of labor
    - If oxytocin infusion is not available and/or an option:
      - Per ACOG statement, can consider a one-time, 10 IU, IM dose of oxytocin for postpartum hemorrhage prophylaxis<sup>2</sup>
      - May want to consider the “rule of threes” dosing strategy.<sup>3</sup> This strategy was described by Kovacheva et al., in a 2015 study in which patients undergoing elective cesarean delivery were randomized to receive oxytocin 3 IU at timed intervals (0, 3, and 6 minutes after delivery) if evaluation of uterine tone was deemed inadequate in the study group at those timed intervals vs. oxytocin 30 IU/500mL 0.9% Normal Saline “wide-open.” After 3 doses of 3 IU oxytocin, the algorithm calls for alternative uterotonic medications. The “rule of

threes" algorithm resulted in lower oxytocin doses when compared with continuous-infusion oxytocin and may be an option to conserve oxytocin supply.

- Consider starting with a one-time dose of alternative uterotonic (methylergonovine, 15-methyl prostaglandin F2alpha, misoprostol) for postpartum hemorrhage prophylaxis, based on patient risk factors
- If postpartum hemorrhage occurs, consider using stepwise alternative uterotonics, based on patient risk factors, and only proceeding with oxytocin if the alternative uterotonics have failed. Dosing recommendations for uterotonics can be found in Table 3 of the ACOG Practice Bulletin No. 183.<sup>4</sup>

- Outside the Box:

Calcium is a key driver in uterine contraction and previous studies have shown that low calcium levels affect the strength of uterine contractions and oxytocin's efficacy is dependent on adequate calcium levels. A recent pilot study from Ansari et al., "*assessed the feasibility, patient tolerance, pharmacokinetics, and potential effectiveness of a randomized controlled trial protocol investigating intravenous calcium chloride for the prevention of uterine atony during cesarean delivery.*" The authors found that intravenous calcium chloride was well tolerated by patients with a trend towards a decreased incidence of uterine atony in patients receiving calcium chloride.<sup>5</sup>

Although further investigation of calcium chloride for prevention of uterine atony is warranted, in times of oxytocin shortage and potential continued hemorrhage despite alternative uterotonics, consideration of IV calcium chloride may be reasonable.

## References

1. <https://www.ashp.org/drug-shortages/current-shortages/drug-shortage-detail.aspx?id=869&loginreturnUrl=SSOCheckOnly>. Last accessed 11/21/2022
2. <https://www.acog.org/clinical-information/physician-faqs/oxytocin-shortage>. Last accessed 11/18/2022
3. Kovacheva VP, Soens MA, Tsen LC. A randomized, double-blinded trial of a "rule of threes" algorithm versus continuous infusion of oxytocin during elective cesarean delivery. *Anesthesiology* 2015;123:92–100. doi: <https://doi.org/10.1097/ALN.0000000000000682>
4. Practice Bulletin No. 183: Postpartum Hemorrhage. *Obstetrics & Gynecology*: October 2017 - Volume 130 - Issue 4 - p e168-e186. doi: 10.1097/AOG.0000000000002351

5. Ansari JR, Kalariya N, Carvalho B, Flood P, Guo N, Riley E. Calcium chloride for the prevention of uterine atony during cesarean delivery: A pilot randomized controlled trial and pharmacokinetic study. *J Clin Anesth.* 2022;80:110796. doi:10.1016/j.jclinane.2022.110796

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