

Nursing requirements post-implementation of Society for Obstetric Anesthesia & Perinatology (SOAP) guidelines for prevention and detection of respiratory depression with neuraxial morphine use

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Introduction

Most patients undergoing cesarean delivery in the United States receive neuraxial morphine. The most common dose is 150mcg of intrathecal morphine or 3mg of epidural morphine, but in low resource settings can be as low as 50mcg or 1mg, respectively. Due to the risk of significant maternal morbidity and mortality in the obstetric population after neuraxial morphine administration, SOAP guidelines specify recommended respiratory and sedation monitoring frequency during the first 24 hours postoperatively for patients receiving neuraxial morphine analgesia during cesarean delivery (CD). In order to meet these standards, many hospital Labor & Birth/postpartum units may require staffing changes.

Objective

To compare nurse staffing needs with recommended monitoring of high and low risk patients receiving ultra low-dose vs low-dose neuraxial morphine in accordance with SOAP and Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) nursing guidelines.

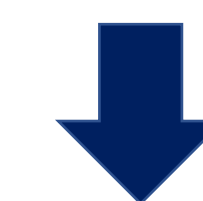
Methods

- Retrospective model based on 30-day average delivery numbers
- Implemented SOAP guidelines for frequency of respiratory monitoring
- Patients were classified as low or high-risk based on perioperative risk factors
- Followed AWHONN guidelines
 - High risk patients: RNs with 2 maternal-baby couplets
 - Low risk patients: RNs with 3 or 4 maternal-baby couplets
- Assumptions : Patients discharged on day 2 after a vaginal delivery (SVD) and day 3 after a C-section

Results

Table 1. Average number of deliveries by type over a 30-day period	
SVD	24 [21.5, 26]
CD (1st 24 hrs)	
Low Risk	2 [1, 3.5]
High Risk	4 [2, 5]
CD (after 24 hrs)	5.7 ± 2.7
Total Postpartum Patients	34 ± 4.3
Values presented as mean ± SD or median [P25, P75]	

Fewer RNs with 2 couplets were required in the ultra-low dose group due to omission of low-risk CD patients within the first 24 hours from intensive monitoring



Fewer total RNs needed if ultra-low dose Neuraxial morphine is used

Table 2. Average total postpartum nurses needed per day over a 30-day period depending on how many maternal/neonatal couplets are assigned per RN

Staffing Model	Ultra-Low Dose Neuraxial Morphine*	Low-Dose Neuraxial Morphine**	p-value
High Risk: RNs with 2 couplets Low Risk: RN with 3 couplets	13.8 ± 2.1	15.4 ± 2.8	0.02
High Risk: RNs with 2 couplets Low Risk: RNs with 4 couplets	11.3 ± 1.8	12.7 ± 2.9	0.03

Ultra-low dose neuraxial morphine, 50mcg intrathecally or 1mg via epidural.

Low dose neuraxial morphine, 150mcg intrathecally or 3mg via epidural.

Values presented as mean ± SD, p Values: t-test for parametric variables, Bold values suggest p < 0.05.

*With ultra low-dose neuraxial morphine, each RN with 2 couplets had one high-risk CD delivery patient less than 24 hours from delivery; each RN with 3 or 4 couplets had otherwise low risk CD patients, CD patients more than 24 hours from surgery or SVD patients.

**With low-dose neuraxial morphine, each RN with 2 couplets had one CD patient (high or low risk) less than 24 hours from delivery; each RN with 3 or 4 couplets CD patients more than 24 hours from surgery or SVD patients.

Conclusion

- Nurse staffing in units following guidance from AWHONN and SOAP for monitoring of women who received neuraxial morphine during CD are **significantly increased** when patients received low-dose neuraxial morphine compared to when patients received ultra-low dose neuraxial morphine
- Generally, in the United States, hospitals use low-dose Neuraxial morphine (150mcg intrathecally or 3mg via epidural).
- Representative model for hospitals globally to follow both SOAP and AWHONN guidelines depending on dose of intrathecal morphine used
- Increased nursing needs **are important balancing measures** that should be considered with improved post-operative pain control, reduced utilization of opioids, and increased patient satisfaction related to postpartum pain needs.

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