RESEARCH ARTICLE

# Postpartum Nurses' Experience Caring for Infants With Neonatal Abstinence Syndrome

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ABSTRACT

**OBJECTIVES:** In previous years, otherwise healthy infants with neonatal abstinence syndrome (NAS) in our hospital were transferred to the NICU and frequently treated with medication. Currently, infants with NAS room-in with their mothers and rarely require medication. We sought to understand the lived experience of nurses on maternity and well-newborn units caring for infants with NAS.

**METHODS:** We conducted focus groups of registered nurses on postpartum units at 2 hospitals using qualitative methodology. Themes were identified through consensus, and the focus groups were stopped when no new themes were identified.

**RESULTS:** Seventeen postpartum nurses participated in 5 focus groups. The following major themes emerged: (1) managing the expectations of parents of newborns with NAS, (2) current NAS protocol (positive aspects of rooming-in and challenges with withdrawal scoring tool), (3) inconsistencies in care and communication, (4) perceived increase in nursing workload on the postpartum unit, and (5) nurses' emotional response to the care of infants with NAS.

**CONCLUSIONS:** We highlight the perspectives of nursing staff on the well-newborn unit who were previously unaccustomed to caring for infants with NAS. With increasing numbers of infants with NAS and longer stays on the well-newborn unit, hospitals must prepare to better support staff and implement protocols that offer consistency in practice.

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Neonatal abstinence syndrome (NAS) is a postnatal drug-withdrawal syndrome that occurs in infants due to in utero exposure to opioids.[1] Infants with NAS develop clinically recognizable signs, such as difficulty feeding, irritability, and excessive crying.[1–3] The rising opioid epidemic in the United States has contributed to a threefold increase in incidence of NAS over the past decade.[4,5]

The traditional approach to treatment of infants with NAS includes minimizing environmental stimulation, management in NICUs, and treatment with opioids.[1,3,6–12] In recent years, there has been an emphasis on nonpharmacological therapies, including rooming-in, decreased environmental stimulation, and breastfeeding as first-line management of NAS.[1,12–16] Investigators from our institution have previously shown that encouraging mothers with opioid dependence to room-in with their otherwise healthy infants resulted in fewer infants receiving pharmacotherapy, less separation of the mother and infant, and shorter hospital lengths of stay.[17] The results of this work informed our institution's current practice to admit otherwise healthy infants delivered to mothers with opioid dependence directly to the well-newborn unit to room-in with their mothers.

Because of the change in admission practice, maternity and well-newborn unit nurses took on a new role in initiating the hospital's treatment approach to NAS. Previous studies have documented the experiences of nurses caring for infants with NAS in the NICU setting[18–20] using a traditional, nonrooming-in model of care. However, qualitative studies on the perspectives of postpartum nursing staff using a mother-centered model of care are lacking. Understanding the experience of postpartum staff is important because initiation of the mother-centered approach to the management of NAS begins in the well-newborn unit. By hearing directly from postpartum nursing staff, we can help better understand successes and opportunities with our current treatment approach and identify ways to support the staff to ensure that the quality of care for the increasing numbers of infants with NAS remains high.

## METHODS

### Study Design

We conducted a qualitative descriptive study using data from 5 focus groups to describe postpartum registered nurse (RN) perspectives on the management of infants with NAS with our current approach. The study was conducted between June 2017 and September 2017. Approval from the institutional review board was obtained before beginning the project.

### Setting and Sample

Our study setting was in 2 maternity and well-newborn units ~1 mile apart that are both part of a larger regional hospital health system serving a socioeconomically diverse urban and suburban community. The first unit is within a large tertiary academic center that includes a NICU and general pediatric inpatient units. There are ~4000 deliveries per year at this site, and women with high-risk pregnancies are managed at this site. The second site is staffed by a midwifery service, has ~1200 deliveries per year, and includes a special care nursery. Infants from this site are transferred to the general inpatient unit or NICU at the tertiary academic center once the mother has been discharged or if the infant requires an escalation of care. We selected these 2 well-newborn units because most of the infants transferred to our inpatient pediatric unit for further management of NAS were from these units. Both units received the Baby-Friendly USA designation in 2016 and 2011, respectively, and implemented rooming-in 1 to 2 years before the Baby-Friendly USA designations. From 2016 to 2018, we treated ~70 to 75 infants with NAS per year.

Infants ≥35 weeks' gestation with NAS are admitted and managed on both well-newborn units by using 1 standardized NAS approach. In general, 1 postpartum RN was assigned to 3 to 4 mother-infant dyads. At the time of the study, 2 separate general pediatric groups rounded on the well-newborn units in each location. RN/patient ratios are the same on both units, and 1 to 2 lactation consultants staffed both units daily. At the time of the study, staff on both well-newborn units had incorporated most of the approach used on the inpatient pediatric unit (rooming-in, low-stimulation environment, mother-centered care, skin to skin, and swaddling) except discontinuing the use of the Finnegan scoring tool to assess withdrawal. This was in part due to a delay in alignment of the NAS policy across all the health system hospitals. The Finnegan scoring tool is a widely used standardized assessment tool used to assist in quantifying the severity of signs and symptoms of neonatal opioid withdrawal.[21] Infants were given a Finnegan score every 3 to 4 hours or with every set of vital signs per unit policy. The administration of morphine is not permitted on the well-newborn unit, and any infant thought to require medication was transferred to the inpatient pediatric unit.

We conducted purposeful sampling of RNs who provided direct bedside care to postpartum mothers and their infants with NAS. We did not include patient care associates, physicians, social workers, or other ancillary staff. A descriptive flyer was posted in the unit breakrooms to recruit RNs to participate. Focus groups were held at different times of the day to accommodate RNs working day and night shifts. Participants received a $10 gift card at the end of each focus group.

### Data Collection

Before each focus group, written informed consent was obtained after verbal explanation of the study was provided by the focus group moderator. Participants completed an anonymous demographic survey. The variables were chosen by consensus of the research team to describe the focus group participants. Five focus groups, each containing 2 to 4 participants, were held in private conference rooms on the maternity and well-newborn units. An interview guide was developed from current literature and expert opinion. The interview guide was revised in an iterative process as new information emerged from the data (Table 1). The focus groups were moderated by 2 members of the research team (J.L. and D.P.). A second member of the research team was present at each focus group (V.N.N.) to take field notes about verbal cues and interaction among participants. Each

**TABLE 1** Interview Guide

| |
|---|
| Tell us about your experience taking care of infants with NAS at this hospital. |
| How has your experience changed over the past several years? |
| What are the positive aspects of taking care of infants with NAS at this hospital? |
| What are the challenging aspects of taking care of infants with NAS at this hospital? |
| How do you support breastfeeding in mothers of infants with NAS?[a] |
| What do you think about the current withdrawal assessment tool (Finnegan)? |
| Previous studies about mothers' experiences in the hospital with NAS have reported that mothers often feel judged by nursing staff. What are your thoughts about this finding? |

[a] Brought up independently in F1.

focus group had 2 members of the research team present; 1 led the discussion, and the second took field notes. Focus groups lasted for 45 to 60 minutes each. The interviews were audiotaped and transcribed verbatim by an independent transcription service (ASP.MD Inc, Cambridge, MA).

### Data Analysis

Descriptive statistics were conducted on the demographic data to identify sample characteristics. Transcripts were analyzed in an iterative process by using the constant comparative method.[22] In the constant comparative method, patterns in the data were identified as well as relationships among concepts. With each new focus group, segments of data were compared to identify similarities and differences. Data were then grouped to form categories that were arranged in a relationship to each other to form themes.[22] Categories were initially grouped by at least 2 members of the research team independently and then discussed as a group to finalize coding. Themes were identified through consensus, and the focus groups were stopped when no new themes were identified (theoretical saturation). Coding was organized by using Microsoft Office Excel 2007.

To establish trustworthiness of data, analysis included ongoing debriefing sessions. Debriefing sessions included at least 2 members of the research team. The research team consisted of multiple investigators with varied backgrounds, including nurses and physicians. Debriefing sessions were held with members of the research team to discuss tentative themes and interpretations. To address credibility of data through triangulation[23] during debriefing sessions, the research team reviewed and discussed field notes collected by the second researcher during the focus groups. We performed member checking during focus groups to ensure correct interpretation of what was being shared and by discussing tentative themes and interpretations with a subset of research participants.

## RESULTS

Demographics of participants ($N = 17$) are presented in Table 2. Of 5 focus groups, 3 had 4 participants in each group, 1 had 3 participants, and 1 had 2 participants. Participants in 3 focus groups worked primarily the day shift, 1 focus group included staff that worked primarily overnight, and 1 focus group included a mix of day and night staff. No new themes were achieved after 3 focus groups (12 participants), but 2 additional focus groups were conducted to ensure saturation.

Five major themes emerged from our analysis. Themes and subthemes are listed in Table 3.

### Managing the Expectations of Parents of Newborns With NAS

In this theme, participants described their interactions with parents of infants with NAS, including managing parents' expectations, parents' emotional state, family complexity, and mothers with comorbid conditions, such as nicotine dependence. Participants felt challenged by needing to manage parents' expectations around the current management approach, including appeasing anxious parents seeing withdrawal symptoms in their infants. Some participants found it difficult for some particularly anxious parents to console their infants. One participant stated, "…the parents, they're not calm people, and when they see the baby…having shivers, they get more nervous" (focus group [F]1). Participants reported that some parents wanted their infants medicated when seeing withdrawal symptoms or high Finnegan scores. One participant stated, "You bring them in a screaming baby…they're like, 'Oh, get him medicine quick!'" (F4). Some participants struggled with navigating social work evaluations or having to maintain confidentiality about NAS management around family members or partners who are unaware of the mother's past drug history. In mothers who were tobacco smokers, participants felt that they had to convince mothers to not leave the unit to smoke and reiterate the importance of being with the infant. One participant shared, "…many times you are peeling them [the mother] off the wall or telling them they can't leave the floor for a cigarette" (F1).

**TABLE 2** Participant Characteristics ($N = 17$)

| | *n* (%) |
|---|---|
| Employee status | |
| Full-time | 10 (58.8) |
| Part-time | 6 (35.3) |
| Per diem | 1 (5.9) |
| Length of time in current position, y | |
| <5 | 5 (29.4) |
| ≥10 | 8 (47.1) |
| 5–9 | 2 (11.8) |
| Highest education level | |
| College | 14 (82.4) |
| Associate degree | 2 (11.8) |
| Graduate | 1 (5.9) |
| Female sex | 17 (100) |
| Age, y | |
| >35 | 13 (76.5) |
| ≤35 | 4 (23.5) |
| Race and/or ethnicity | |
| White, non-Hispanic | 16 (94.1) |
| White, Hispanic | 1 (5.9) |

### Current NAS Protocol: Positive Aspects of Rooming-In and Challenges With Withdrawal Scoring Tool

In this theme, participants shared their perspectives on the current NAS protocol, specifically the Finnegan scoring tool and the mother-centered management approach. Participants' perceptions of the current practice of having infants with NAS

**TABLE 3** Experiences of Postpartum Nurses Taking Care of Infants With NAS: Description of Subthemes

| Themes | Subthemes |
|---|---|
| Managing the expectations of parents of newborns with NAS | Managing parents' expectations about the use of medication |
| | Parents' emotional state during the newborns' withdrawal |
| | Family complexity, such as maintaining confidentiality around NAS treatment and need for social work |
| | Maternal smoking, specifically encouraging mothers to not leave the unit and maximize time being with the infant |
| Current NAS protocol: positive aspects of rooming-in and challenges with withdrawal scoring tool | Finnegan scoring tool as subjective and disruptive to newborns |
| | Mothers taking an active role with the newer approach |
| | RNs perceive improved outcomes, such as fewer withdrawal symptoms |
| Inconsistencies in care and communication | Breastfeeding in infants of mothers who are drug dependent differs between clinicians and units |
| | Criteria for discharge may differ across pediatric clinicians |
| Perceived increase in nursing workload on the postpartum unit | Workload shift from the NICU to maternity and well-newborn units |
| | Increase in acuity, specifically more focused care, education, attention, and support for families |
| Nurses' emotional response to the care of infants with NAS | Negative emotions, such as worry, frustration, and feeling powerless |
| | Positive emotions, such as hope and empathy |
| | Bias of self and peers when caring for newborns with NAS and their families |

room-in with their mothers were positive in comparison with previous management of admitting infants to the NICU. One participant stated, "…they are all out with the moms so…they are keeping them calmer, and the withdrawing process is a lot easier" (F2). Participants perceived that rooming-in and having parents be the first-line treatment has resulted in more manageable withdrawal symptoms in infants with NAS. One participant shared, "…the last few babies that I've had, the mom's really assumed full care" (F2).

Regarding the Finnegan scoring tool, participants referred to it as "subjective" and "unnecessary" (F1, F2, F3, and F4). Many felt that the scoring tool was counterproductive when the primary treatment goal was to minimize disturbances and maintain a low-stimulation environment. One participant described her experience with Finnegan scoring: "It's hard…to carry out NAS scoring…these kids are withdrawing less, and they are a lot happier…but we are unwrapping them…we are doing nothing with the score" (F2).

## Inconsistencies in Care and Communication

In this theme, participants shared their perspectives on 2 aspects of caring for the NAS mother-infant dyad, specifically communication around breastfeeding and criteria for discharge. One participant stated that staff on the labor and birth units, staff on the well-newborn units, lactation consultants, and pediatric clinicians all had differing opinions regarding breastfeeding, specifically, "…[mothers] weren't allowed to [breastfeed in the labor and birth units] because the nurse was unsure, but then lactation is, like, 'Oh, absolutely they can'…we have to deal with the aftermath" (F3). Some participants felt that the complexities around breastfeeding were simplified when mothers chose to formula feed. One participant shared, "I think a lot of the staff, too, is, like, 'Thank God, they are formula feeding,' and won't take the time to educate someone who is taking methadone" (F2). Participants also expressed concern about communication in situations in which pediatric clinicians are unaware of the mother's drug history. One participant shared, "There's times I've pulled [providers] aside privately and say, 'Do you know she has a history of X, Y, and Z?' And they don't" (F1). Some participants struggled with inconsistent discharge practices among pediatric clinicians. Specifically, some clinicians would monitor the infants for 5 days in the hospital per the NAS protocol, and other clinicians would discharge the infants sooner.

## Perceived Increase in Nursing Workload on the Postpartum Unit

In this theme, participants shared their perspectives on taking care of infants with NAS and their mothers together after the change to admit otherwise healthy opioid-exposed newborns to the well-newborn unit instead of the NICU. Participants expressed concern that the workload of the NAS infant-mother dyad has added complexity to the standard nursing workload, and some felt that these patients have higher acuity. Regarding workload, 1 participant stated, "An average mother-baby ratio for a day nurse is usually 4 couplets. …I take a sigh of relief if I have 1 NAS baby and my 3 other babies are stable" (F1). Some participants felt that the nonpharmacologic approach to treatment placed higher demands on staff with regard to teaching parents how to console an infant with withdrawal symptoms. One participant shared, "It's not just the baby, it's the whole family unit. … You're taking care of the mother, who usually has a lot of issues…the acuity for the whole couplet is a lot higher" (F1).

Some participants felt that the workload has shifted to the parent and felt that taking care of an NAS infant-mother dyad was the same as any other dyad. For 1 participant, the factor that contributed to a more manageable workload was the mother's "compliance," specifically, "She must be compliant. She must have a negative tox [icology] screen. If you can show that you are well supported, we can see how you are doing in the room, that you have someone helping you, that you are obviously present,

you're not leaving…" (F4). Another participant, a former NICU nurse, stated, "….in the NICU, we had sometimes 2, 3 withdrawal babies that we would be going crazy [over] because there's nobody around to hold the babies, and they would be screaming, and you know, we had other babies to take care of, so this is just so much better" (F5).

### Nurses' Emotional Response to Infants With NAS

In this final theme, participants shared their negative and positive emotional responses to taking care of infants with NAS. Some participants expressed worry for infant safety after discharge in instances with social stressors and complex psychosocial histories. One participant described, "It's scary on our part of what we're discharging home sometimes with families and wondering, 'I hope that baby is going to be okay'" (F1). Another participant expressed frustration, "We want to be at the bedside, and it is very frustrating when you feel like you can't give as much as you want to…" (F3). Some participants felt powerless about the management of patients and felt that their ability to advocate for patients was limited by their hospital position as "just the nurses" (F1).

Participants also expressed empathy and hope for mothers and infants with NAS, acknowledging that drug dependency is a complex issue, and felt rewarded by the opportunity to empower mothers. One participant shared, "I understand; no wonder you did drugs at 14 if you were abused by your stepfather, your mother's boyfriend. …I have…sympathy," (F5) and another participant stated, "I…just want to give those babies…everything that they deserve. …I also believe in giving a mom a 1-millionth chance" (F3).

Participants acknowledged bias within themselves and peers, which may affect their perception of mothers with opioid dependence. One participant stated, "I personally try to be really aware of not being judgmental…nobody is perfect you know, and, like, I'm sure that there are patients who feel judged and…treated with less compassion…than they should be" (F3). With respect to peers, 1 participant shared, "I do think…staff members…stereotype, and I just think it's who they are. …I can't say that 100% of us don't stereotype" (F2).

## DISCUSSION

Overall, participants felt positive about their role in taking care of infants with NAS and in empowering mothers to take the leading role in their infants' treatment. Study participants experienced strain from interactions with anxious parents with complex psychosocial needs. Participants perceived that the withdrawal assessment tool was subjective and that communication with pediatric clinicians and staff from other hospital units around aspects of the NAS protocol, such as breastfeeding guidance and discharge planning, could be improved. Because more infants with NAS are directly admitted to the well-newborn unit after delivery, participants felt that nursing assignments have not changed with the shift in the workload.

There was universal frustration among participants over the Finnegan scoring tool, particularly because scoring the infant while limiting disruption to the infant was especially challenging. The Finnegan score, developed in the 1970s, was 1 of the first scoring tools for assessing infant withdrawal and is still the most widely used tool today.[1,12,21,24] Finnegan et al[21] intended the scoring system to aid in the assessment and monitoring of NAS symptoms, particularly while titrating treatment with medication. An alternative to the Finnegan withdrawal scoring tool that has been described in recent years is the Eat, Sleep, Console (ESC) function–based approach. Infants with NAS are assessed on their ability to eat ≥1 oz per feed or breastfeed well, sleep undisturbed for ≥1 hour, and be consoled, if crying, within 10 minutes.[25] Grossman et al[25] reported significantly less pharmacotherapy in infants with NAS managed with the ESC tool compared with infants assessed with the Finnegan tool. In a 2018 study of a comprehensive quality-improvement program that included a nonpharmacologic care bundle, symptom prioritization, and a parental education approach, investigators reported a decrease in pharmacotherapy, hospital length of stay, and total hospital charges and an increase in parental presence.[26] Since completion of the current study and to standardize the treatment approach for NAS, the use of the Finnegan tool for assessment of withdrawal was discontinued in the well-newborn unit, and the NAS policy on the well-newborn units was changed to incorporate the ESC approach.

Participants expressed concern about inconsistent messaging about breastfeeding to mothers who are drug dependent. The Academy of Breastfeeding Medicine recommends that women on stable doses of methadone maintenance should be encouraged to breastfeed.[27] However, the use of illicit drugs or abuse of prescription drugs during pregnancy, including the type of drug, the timing of use, polysubstance abuse, substance abuse treatment history, psychosocial factors, and the availability of this information at the time of delivery, can make it difficult for clinicians and nurses to make an informed recommendation to the mother. This complexity results in mixed messages to the mother and creates confusion for postpartum RNs at the bedside. The benefits of breastfeeding are well recognized with many advantages to both mother and infant.[27] Hospitals should include an evidence-based approach to counseling mothers who are drug dependent in their NAS protocols, and this may positively impact breastfeeding rates, particularly in infants with NAS. To address inconsistencies in breastfeeding counseling, we brought together a multidisciplinary group of clinicians from general pediatrics, neonatology, and lactation to review the current evidence and recommendations regarding breastfeeding in mothers who are drug dependent to create a guideline to help inform clinicians on how to counsel mothers with a more consistent approach.

Previous studies, mostly in the NICU setting, have reported that nurses taking care of infants with NAS often dealt with stress, frustration, and burnout.[18,19,28] In 1 qualitative study of NICU nurses, the investigators suggested that the nurses' lack of knowledge related to substance abuse and addiction may contribute to the nurses' negative experiences caring for infants with NAS, and the investigators

proposed mandatory education on maternal substance addiction for all nursing staff.[2] Nursing and hospital leadership need to recognize the changing landscape of where infants with NAS are being cared for in the hospital, and consideration should be given to add more content in nursing education and orientation, specifically for postpartum nurses, regarding substance abuse and management.

Our study is limited by the sociodemographic homogeneity of our sample, sample size, and perspectives limited to postpartum nurses in our 2 hospital settings. We interviewed participants until no new themes appeared, but it is possible that we may have missed themes. Two of the 5 focus groups had <4 participants, which is generally the minimum recommended number of participants in a focus group.[22] In the focus group with only 2 participants, the imbalance of equal research staff to participants may have affected the interviews. At the time of the study, within our institution, the ESC approach was being implemented on the inpatient pediatric units. Although the approach was being adopted on the well-newborn units, discontinuation of the use of the Finnegan tool lagged because of delays in standardizing the NAS protocol across the entire health system. This difference in the assessment of withdrawal in infants with NAS between the hospital units (inpatient and well newborn) may have informed some of the interviews. The scores of the Finnegan tool may occasionally have driven treatment depending on the attending pediatrician in the well-newborn unit.

Regarding implications, hospital leadership and administration must recognize and address the needs of postpartum staff faced with caring for an increasing number of infants with NAS. This includes having flexibility with nursing assignments to allow for more time, if needed, with individual families when initiating the NAS protocol; implementing and standardizing evidence-based protocols that foster more consistent communication around breastfeeding, for example; and better education and preparation of postpartum nurses for mother-infant dyads with prenatal opioid exposure.

## CONCLUSIONS

Understanding postpartum nurses' experiences in caring for infants with NAS with a primarily nonpharmacologic approach provides opportunities for improving the overall quality of care of increasing numbers of infants with NAS in the United States, and more research on this topic is needed. Moving infants with NAS out of the NICU setting to maternity and well-newborn units creates a previously underrecognized strain on the postpartum nursing workforce.

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